# Nature Magazine

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DECEMBER
1955

VOLUME 48
NUMBER 10

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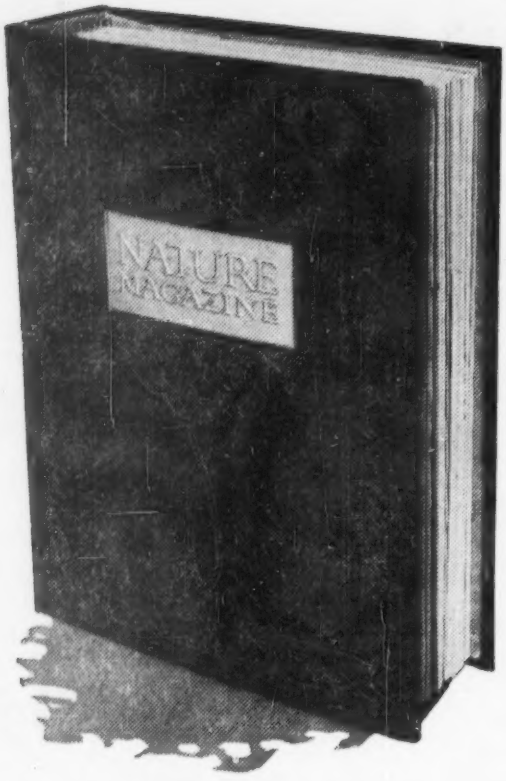


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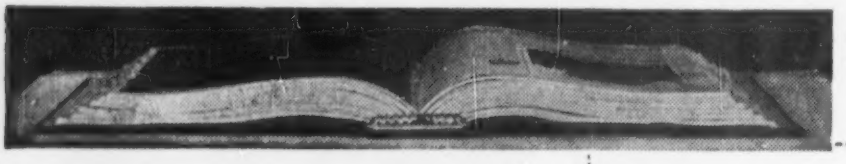

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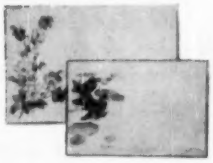

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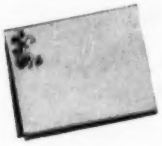

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**Nature Magazine past and present, is indexed in The Reader's Guide in your public library.**

## The Cover

On the cover this month we bring you greetings in several languages. The design is the work of Rudolph Wendelin, Staff Artist of the U. S. Forest Service. Mr. Wendelin's responsibilities include being sure that drawings and use of Smokey Bear are faithful to the original conception of this important fellow.

As to the holiday greetings, they are "Merry Christmas" as follows: *Joyeux Noel* (French); *Gelukkig Kerstfeest* (Dutch); *Froehliche Weihnacten* (German); *God Jul* (Norwegian and Swedish); *Feliz Navidad* (Spanish); *Glaedelig Jul* (Danish); *Nodhlaig Fe Shona Agus Fe Mhaise Dhuit* (Gaelic); *Feliz Natal* (Portuguese); *Sretan Bozic* (Jugoslav); *Buon Natale* (Italian); *Zycze, Wam Wesolych Swiat Bozego Narodzenia* (Polish).

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### Key Deer

Addition of 71 acres of public land to the National Key Deer Refuge in Florida assures greater protection for these small deer. The present population is believed to be 112 animals, a substantial increase from the 32 estimated for 1951.

### Schweitzer Statue

A bronze portrait of Dr. Albert Schweitzer has been presented to the Smithsonian Institution by Leo Cherne, sculptor and president of the Research Institute of America. The bronze of this great humanitarian, and medical missionary among the native populations of Africa, stands 13 inches high.

### Fabre Film

Announcement is made by Contemporary Films, Inc., 13 East 37th St., New York 16, N.Y., that it has available for distribution the 90-minute film entitled "The Amazing Monsieur Fabre." The role of the great entomologist is played by the distinguished French actor, Pierre Fresnay.


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# Nature IN PRINT

By HOWARD ZAHNISER

## Towards the West

WE HAVE BEEN CELEBRATING this year the hundredth and fiftieth anniversary of the travels of Meriwether Lewis and William Clark across the great American wilderness, from St. Louis to the Pacific. As I traveled in August from Chicago to Missoula, Montana, enroute to a rendezvous with other members of the Council of The Wilderness Society and Forest Service officials, for a study of problems in the Selway-Bitterroot Primitive Area, it was not only delightful but exciting to find on the train (the Northern Pacific Railway's "North Coast Limited") a buffet lounge car decorated in accordance with a "Lewis and Clark theme." It was a further good fortune, indeed, that I had with me *The Journals of Lewis and Clark* as edited so helpfully by Bernard De Voto.

This car, called "Traveller's Rest," as Lewis and Clark had named their camp in the Bitterroot Valley at the mouth of Lolo Creek, had on its wall a mural map, by Edgar Miller, and as the railway paralleled or followed so much of the explorers' trail along the Missouri, Yellowstone, Gallatin, and Jefferson Rivers, I became more and more engrossed in these remarkable journals and charmed with my good fortune in reading them in such surroundings and at such a time of remembrance. A fortnight or so later I had the peculiar pleasure in Hamilton, Montana, on September 9, 1955, of wiring my brother on his birthday and saying: "A hundred and fifty years ago today Lewis and Clark camped at Traveller's Rest north of here and traveled over some of the valley that I shall traverse this afternoon. The shades of Lewis and Clark and Sacajawea join me in wishing you and Miriam a happy birthday."

My copy of this telegram I find now as a book mark in Mr. De Voto's volume, and it reminds me again of how greatly enriched my own travels were by the associations with the adventurous expedition that a century and a half earlier had prepared the way. Weary with the humid heat and the soul erosion of summer anxiety in Washington over threats in Congress to areas of primitive America that still remain protected in our National Park System, I settled happily into the records of the hardships of Lewis and Clark—and quite forgot my own weariness, and even the responsibilities that were ahead of me in Montana. When I did later travel—by automobile, in dust and complaints of dust—along or near the Lolo Trail that Lewis and Clark followed, and then by horseback the primitive trails that traverse the wilderness that still remains, I knew an added exaltation—a jubilant inspiration—in the thought of these pioneers. It comes again as I write these words for a December page, noting that this anniversary should be spent along the Pacific—or more precisely at Fort Clatsop, where the expedition was 150 years ago this December 25—a day, unfortunately, that "proved showery wet and disagreeable."

The difficulties of the journey are at least suggested by Clark's further journal comment:

"we would have Spent this day the nativity of Christ in feasting, had we any thing either to raise our Sperits or even gratify our appetites, our Diner concisted of pore Elk, so much Spoiled that we eate it thro' mear necessity, Some Spoiled pounded fish and a fiew roots."

### Intrepid explorers

Intrepid—one of those negatives in our language that are magnificent positives—is certainly a good word for Lewis and Clark. When Lewis had first viewed the mountains on a Sunday the preceding May (on the 26th), and had "reflected on the difficulties which this snowey barrier would most probably throw in my way to the Pacific," he had found the joy of his first sight of the mountains somewhat "counterbalanced," and yet he had concluded by commenting, "as I have always held it a crime to anticipate evils I will believe it a good comfortable road until I am compelled to believe differently." Dauntless also, Clark wrote his Christmas entry with the cross-mountain journey accomplished and the return awaiting them.

One is much impressed with the good companionship of Meriwether Lewis and William Clark, with the prevailing agreement of their leadership and adventure.

It has been an exciting pleasure more recently to read the record of another journey by two good companions, in the spring of 1953—"around the perimeter of wild America," as they put it. In an infectiously enthusiastic new book, entitled *Wild America*, these two travelers—Roger Tory Peterson and James Fisher—have presented an amazing account of the birds and other wildlife, and the wild country itself, that may be experienced, in the parts of the United States that they visited, on an automobile trip.

On this book's jacket the publishers describe these two authors as "perfect counterparts," the one an American, the other an Englishman. "Each in his own country," we are told, "has interested more people in birds than any other man now living." Author of his *Field Guide to the Birds* and of *Birds Over America*, and editor of the Peterson Field Guide Series, Roger Peterson is also widely known and admired as an artist. Mr. Fisher likewise is known in his own country as the editor of a series of books, the New Naturalist Series; he is the author or coauthor of a dozen books and is well known as a natural history broadcaster on the BBC.

These two great ornithologists "started in Newfoundland, just as spring was reaching the sea-girt province, and went south along the Appalachian highlands to Cape Sable and the Dry Tortugas, America's coral islands, then west and south into the cloud forests of Mexico. Crossing the Continental Divide and deserts to the Coronado Islands, they traveled up the entire length of the Pacific Coast to Alaska, where their journey reached its climax in the Pribilofs."

### The human inhabitants

Pondering, after his return to England, "what was the most important thing" that he had brought home from America, James Fisher concluded that it was his knowledge of

the inhabitants—the human inhabitants, mind you—of this land. He was deeply impressed with what we have done to North America but also with what we "have *not* done" —and the italics are his own. He does us the honor to declare that we "publicize too little" our "determination to share" our earthly paradise "with wild nature," and he exclaims, "never have I seen such wonders or met landlords so worthy of their land."

In a new volume of the American Naturalists Series which she is editing, Farida A. Wiley has presented selections from the writings of a great political leader who also was an outdoorsman and became our outstanding historic conservationist influencing his fellow citizens to be "landlords worthy of their land." It is Theodore Roosevelt, of course, and his writings—natural history, cattle-country and frontier accounts, hunting tales, South American travel tales, and conservation addresses and articles—seem remarkably fresh and timely.

Almost half a century ago—a little more than a century after Lewis and Clark had traversed the plains and mountains from Mississippi to Pacific—Theodore Roosevelt, at the great 1908 Conservation Conference, said with the authority of the Presidency:

"It is time for us now as a nation to exercise the same reasonable foresight in dealing with our great natural resources that would be shown by any prudent man in conserving and widely using the property which contains the assurance of well-being for himself and his children."

It seems a nice fortune to receive Miss Wiley's new volume at the same time that the exciting book *Wild America*, with its account of a journey only year-before-last, brings the compliments of Mr. Fisher's comment that while we have the power to ravage our land we have "instead made it a garden." Surely we have little cause for complacency, occasion enough for continued efforts toward better conservation policies more closely followed, but surely, also, it is a welcome encouragement to see our land through the excited eyes of one from another land who himself has been inspired by some of its great stretches of wildness—good to know that after a century and a half there also are still some stretches traversed by Lewis and Clark where one can stand and, looking at the same Bitterroot Mountains that William Clark called "these Stupendeous Mountains," can readily understand Clark's comment, "we are entirely surrounded by those mountains from which to one unacquainted with them it would have seemed impossible ever to have escaped."

*The Journals of Lewis and Clark.* Edited by Bernard De Voto. Boston: Houghton Mifflin Company. 1953. liv + 504 pp. (5⅞ by 8¾ in.), with end-paper and 6 text maps by Erwin Raisz, preface and introduction by the editor, index, and 3 appendices: Jefferson's Introductions to Lewis, Personnel of the Expedition, and Itemized List of Specimens and Artifacts Sent to Jefferson from Fort Mandau. $6.50.

*Theodore Roosevelt's America: Selections from the Writings of the Oyster Bay Naturalist.* Edited by Farida A. Wiley. New York. The Devin-Adair Company. 1955. XXiii + 418 pp. (5⅞ by 8¾ in.), with frontispiece photograph by Walter Scott Shinn, 36 drawings by Ugo Mochi (All but 6 are silhouettes.), foreword by Ethel Roosevelt Derby, introduction by the editor, reprints of four articles appraising Theodore Roosevelt as a naturalist (by Ambrose Flack, John Burroughs, Gifford Pinchot, and Henry Fairfield Osborn), chronology of Important Events in the Life of Theodore Roosevelt, and index. $5.75.

*Wild America: The Record of a 30,000-mile Journey around the Continent by a Distinguished Naturalist and His British Colleague.* By Roger Tory Peterson and James Fisher. Boston: Houghton Mifflin Company. 1955. Xii + 434 pp. (5¾ by 8¼ in.), with end-paper and 1 text map, 1 graph, and 130 drawings by Roger Tory Peterson, Appendix on History of the Fur Seal Herds, and index. $5.

**Spider, Egg and Microcosm**

*By Eugene Kinkead. Introduction by E. B. White. New York. 1955. Alfred A. Knopf. 244 pages. $4.00.*

In this interesting and most readable book the author explores three fields of science through the lives of Alexander Petrunkevitch, arachnologist; Alexis Romanoff, embryologist; Roman Vishniac, microbiologist. Most of the three parts of the book originally appeared, in slightly different form, as three of the famous "Profiles" in *The New Yorker*.


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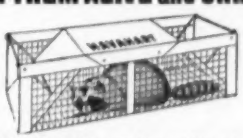

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# Reviews

**Conservation Handbook**

*Prepared by The National Conservation Committee of the National Association of Biology Teachers. Ann Arbor, Michigan, Box 2073. 499 pages. Illustrated. $4.00, with 20 percent discount to schools and teachers.*

A fuller title of this book is "Handbook for Teaching of Conservation and Resource-Use." It is the fruit of a project financed by a grant-in-aid of $10,000 from The American Nature Association. More, it is the fruit of an amazing collaboration by biology teachers far and wide, with Richard L. Weaver of the Conservation Department, School of Natural Resources, University of Michigan, as project leader. The object of the book is to aid teachers to get started teaching conservation in both elementary and secondary schools. It is not, however, a textbook of instruction in conservation teaching. Instead, it brings together examples of good conservation teaching that have been tried and succeeded in various parts of the country. Methods and techniques that have worked are thus made available to the teacher. The story of the manner in which the book was prepared is told briefly in an introductory chapter, and this is fascinating in itself as an amazing example of teamwork. In addition to the chapters dealing with conservation teaching from a variety of viewpoints and against different backgrounds, there is an excellent appendix listing source information. Here is a wealth of material that any teacher must find helpful and suggestive.

**Birds & Men**

*By Robert Henry Welker. Cambridge, Massachusetts. 1955. The Belknap Press of Harvard University Press. 230 pages. Illustrated. $5.75.*

There is an extension of the title of this engaging and engrossing book—"American Birds in Science, Art, Literature, and Conservation: 1800-1900." This century, of course, saw both the birth and the maturity of ornithology in America, starting with Alexander Wilson and concluding with a public sentiment that outlawed the destruction of bird life for female adornment. In between lies the story of the rise of John James Audubon and his feud with Wilson and Ord; the literary contributions of Thoreau, Burroughs, Muir, Whitman and others; the growth of the first seedlings of conservation; encouragement of natural history writing by certain magazines, both adult and juvenile. Here is history of men and birds at its best. The author writes entertainingly and with humor, and his book cannot be reviewed in brief—as it regretfully must be here—because it holds so much of value and interest. The illustrations from an earlier day add to the text admirably. This is one of the first books to be issued under the imprint of the Belknap Press, made possible through the generosity of the late Waldron P. Belknap, Jr., to assure the publication of outstanding books on American history and culture. Surely Mr. Welker's contribution falls into that category.

**Astronomy**

*By Rose Wyler and Gerald Ames. New York. 1955. Simon and Schuster. 97 pages. Illustrated in color by John Polgreen. $3.95.*

This is the Golden Book of Astronomy and a child's introduction to the wonders of space. It covers, in simple and interesting text, the stars, sun, moon, planets, comets and nebulae. There are end maps showing the constellations and their positions in the heavens during the four seasons. This book makes astronomy come alive.

**Briefly Noted**

*The Wonderful World of Mathematics. By Lancelot Hogben. New York. 1955. Garden City Books. 70 pages. Illustrated in color. $2.95.* Here is a most dramatic and colorful presentation of the bases and history of mathematics; a book that certainly will make this study meaningful.

*Woody, The Little Wood Duck. By Ivah Green and Alice Bromwell. New York. 1955. Abelard-Schuman, Inc. 64 pages. Illustrated by George F. Mason. $2.25.* Children's story of the most beautiful of our ducks. For the six-to-niners.

*American Planning and Civic Annual. Edited by Harlean James. Washington, D.C. 1954. American Planning and Civic Association. 280 pages. $3.00.* A record of civic advance in the fields of planning, parks, housing, neighborhood improvement, and conservation of natural resources.

*The First Book of Holidays. By Bernice Burnett. New York. 1955. Franklin Watts, Inc. 64 pages. Illustrated by Marjorie Glaubach. $1.95.* A story of how different holidays came about. For young people.

*American Philosophy. Edited by Ralph B. Winn. New York. 1955. Philosophical Library. 318 pages. $6.00.* A discussion that preserves the breadth and vigor characteristic of American philosophy.

*My Life with the Big Cats. By Alfred Court. New York. 1955. Simon and Schuster. 180 pages. Illustrated. $2.95.* Personal story of a trainer of wild felines.

*The Outdoorsman's Cookbook. By Arthur H. Carhart. New York. 1955. The Macmillan Company. 211 pages. $2.95.* A revised edition of this "Fannie Farmer of the outdoors."

*Celestial Navigation for Yachtsmen. By Mary Blewitt. New York. 1955. Philosophical Library. 64 pages. $2.75.* The title is descriptive of the specialized appeal of this little book.

*Bellingrath and Other Famous Gardens. By Katherine MacLeod. New York. 1955. Comet Press Books. $1.50.* This little book discusses most briefly a number of famous gardens.

*Discovering Nature the Year Round. By Anne Marie Jauss. New York. 1955. Aladdin Books (E. P. Dutton and Co.) 64 pages. $2.50.* A book for boys and girls, ten and up, about what you may see in Nature at different times of the year.

*Man's Emerging Mind. By N. J. Berrill. New York. 1955. Dodd, Mead and Co. 308 pages. $4.00.* This is the concept of man from the point of view of a biologist who has studied the development of living organisms.

*Try Nature. Edited by Robert S. Field. New York. 1955. Vantage Press. 238 pages. $3.75.* The editor draws upon writings in prose and poem to provide guides to health and contentment in the great outdoors.

*Expression of the Emotions in Man and Animals. By Charles Darwin. New York. 1955. Philosophical Library. 372 pages. $6.00.* A new edition of this work, with a preface by Margaret Mead.

*Marine Tropicals. By Ed L. Fisher. Fond du Lac, Wisconsin. 1955. All-Pets Book, Inc. 72 pages. Illustrated. $1.50.* Handbook on the keeping of marine tropical fishes.

*Animal Masquerade. By Ivah Green. New York. 1955. Coward-McCann, Inc. 64 pages. Illustrated. $2.50.* Pictures and brief text about examples of protective form and coloration in Nature.

# Contents noted BY THE EDITOR

**THE SECOND NATIONAL WATERSHED CONGRESS** will meet at the Hotel Statler, Washington, D.C., December 5 and 6 to explore all aspects of the watershed approach to the solution of conservation problems. Again this year the American Nature Association joins other conservation organizations as a sponsor of these sessions. So stimulating were the meetings of the first Congress in 1954 that there was no doubt in the minds of those attending that there should be a second meeting. The sessions this year will consider Federal, State and local responsibilities in carrying out the provisions of the watershed protection and flood prevention act of 1954. This law provides for Federal cooperation with State and local governments in the planning and carrying out of works of improvement for soil and water conservation on a watershed basis. The sessions are open to the public.

**THE CAT VERSUS BIRD CONTROVERSY** is a perennial one. It often involves considerable acrimony, and inspires extreme statements from both the violent pro-cat faction and the equally violent anti-cat people. Solution of what is really a problem—the bird-cat relationship—is not aided by the extremists. A recent release from the American Feline Society, for example, is headed "Cats Destroy Song Birds?—Bunk!" In support of this summary dismissal of the charge, an unidentified report on the stomach contents of 193 cats killed in highway accidents is cited to show that neither bird meat nor feathers were found in the innards of Tom and Tabby. Other studies, not quoted in the release, have shown a considerable percentage of bird to be on the feline menu, particularly during the nesting season when young birds are easy prey. And ground-nesting birds are an important part of the diet of feral cats. At the same time, we doubt the wisdom or practicability of laws seeking to regulate the cat. Most realistic, as between the extremes, we feel, is the program of The National Humane Society to reduce the surplus of dogs and cats, especially those that have become feral. This organization has worked out a campaign and prepared a kit for use in meeting this problem in a practical, not hysterical manner.

**REASSURANCE ABOUT THE WILDLIFE REFUGES** is contained in a speech by Douglas McKay, Secretary of the Interior, to the Portland, Oregon, chapter of the Izaak Walton League of America. He said: "I am personally opposed to the surrender of any refuge needed or the preservation and propagation of wildlife. These refuges, as well as national parks and forests, are an irreplaceable national asset. I feel strongly that these resources, of which the Federal government is the guardian on behalf of all the people, should and must be preserved." With threats against several established refuges in the national system administered by the U.S. Fish and Wildlife Service, this should be adequate notice that the Secretary will fight such invasions.

**WICHITA MOUNTAINS NATIONAL WILDLIFE REFUGE** in Oklahoma is one of the threatened areas, as we have earlier reported in these pages. The Army seeks 10,700 acres for an artillery range, this being a part of the refuge particularly important for wildlife protection and recreation. The recent session of Congress authorized $1000 to accomplish a paper transfer of this area, but this has to be achieved after application to the Department of the Interior. Army testimony to the Congress professed intimate knowledge of what was involved in this proposed grab, and denied that there would be harm to the refuge and its wildlife. It is now wryly amusing that recently the Army sent one of its officers to study what really is involved, and personally to investigate the recreation and wildlife significance of the disputed acres. We hope that Secretary McKay will be just as stubborn about the Wichita as his Portland speech indicates he intends to be.

**WILLIAM P. WHARTON OF GROTON, MASSACHUSETTS,** has for more than fifty years devoted himself quietly but importantly to the cause of conservation. During that time he has held many positions of influence and leadership in the front lines of organized conservation progress in the United States. It is, therefore, most fitting that the American Forestry Association, at its recent annual meeting, should pay tribute to Mr. Wharton by bestowing upon him its Distinguished Service Award for meritorious contribution in the general field of service to conservation. Furtherance of preservation of forests, wildlife and parks have all occupied Mr. Wharton's attention. Never one who has sought the limelight—in fact, he has shunned it—, this conservationist made his contribution through wise counsel. We came to know him in the early twenties, when he was active in Massachusetts conservation organizations, as well as nationally. For nearly twenty years Mr. Wharton served as President of the National Parks Association, and he has personally practised conservation on his home farm lands in Groton. This award was a most happy decision. R.W.W.

DONALD DICKEY FROM NATIONAL AUDUBON SOCIETY

*Popular and populous, masters of the air and skilled in the trade of scavenging are*

# THE SEA GULLS

By JOHN WESLEY NOBLE

When movie director John Huston went to the Irish Sea to film *Moby Dick* he made all possible arrangements to push time back an authentic century. A life-sized replica of Cap'n Ahab's *Pequod* sailed again, thanks to a fine research staff. Old New Bedford, Mass., was faked by nailing false building fronts over seaport homes in the Irish town of Youghal. But the researchers overlooked one raucous actor—the ubiquitous sea gull—and a picture budgeted four million dollars cost an extra million.

Huston needed gulls around the *Pequod* early in the film to indicate that she was near land. He could have had them simply by dumping the day's garbage, but the movie folk threw good bread, and brought gulls wheeling and bickering from near and far. Then, when the script called for a later scene, supposedly on the high seas far from land, where gulls normally do not waste their time, they again appeared in clouds screaming for more bread.

Huston had to stop the cameras, arm his whalers with guns and blank cartridges, and stand by to repel the free loaders. Gulls being what they are, they simply moved out of range, squawking indignant protests. Reels of beautiful color film had to be discarded.

A sea gull never forgets a handout. He is the original "Man Who Came to Dinner." His memory is a permanent thing, surpassed only by his appetite. Gulls had food in mind when they trailed Columbus. They followed the Spanish Armada and were screeching for a handout when Nelson died at Trafalgar. Long before that, "The Appetite" boarded the Ark with Noah, and anyone can see why he had to send the dove to hunt land. Indeed, there are few important events in history they have missed; for to a gull, all the world is a picnic spread.

Speaking of gulls collectively, this forever-hungry bird is as sly as sin, as pretty as a picture and noisier than Babel. He has been cursed as a pest and blessed as an angel in all the tongues of men. He was made the State Bird of Utah because he saved the pioneer Mormons from starvation. He is an industrious scavenger, a blatant thief, a villainous bully, and an intrepid navigator.

In hunting food gulls of one or another species range through our forty-eight States. Gulls have been seen stealing ducklings in Idaho, catching rabbits in Nevada and robbing the nests of other sea birds everywhere. The things a gull swallows would gag a hog, but still he thrives. Because he is a scavenger he is protected in North America by international treaty; kill one or disturb its eggs and you may go to jail for six months, or pay a $500 fine.

Sea gulls are, by nature, as dogged followers as little brothers. They used to trail a barge that carried Oakland

**Gulls, like this western gull, make appealing pictures as they perch on buoys or piles.**

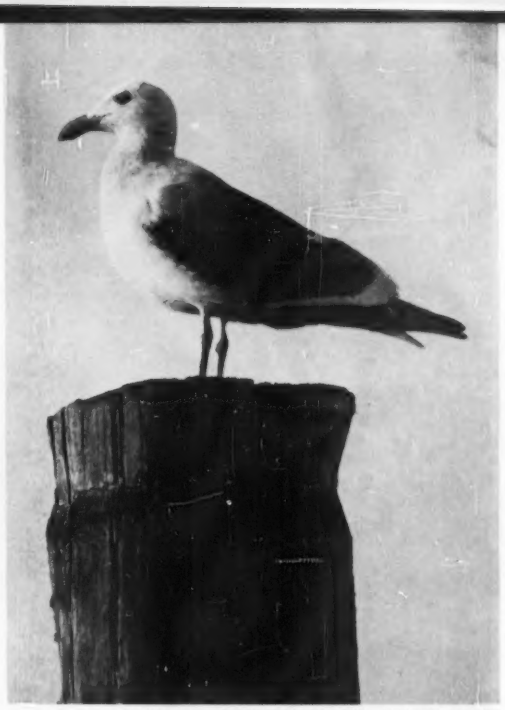
ALLAN D. CRUICKSHANK FROM NATIONAL AUDUBON SOCIETY

garbage outside San Francisco's Golden Gate. It was an aromatic cargo, especially during the fruit-canning season when juicy parings became fermenting pulp. During prohibition the Federal government offered Oakland a dollar a ton to dump confiscated hootch. The first shipment the barge took out—250 gallons—was bootleg that would bite holes in a six-inch plank, but a gull sniffed the stuff and sounded a joyful cry. Thousands of his colleagues quit following ships, streamed to the wharf, and soon drunken gulls were wobbling off to harass commuters on the Bay ferries. Newspapers told the final tally: About 50,000 gulls drunk, 30,000 dead—accidentally buried under wagon loads of "wet" garbage. Hundreds of other gulls rode the waves astern of the garbage boat, "dazed with hangovers." Uncle Sam hurriedly canceled his contract with Oakland.

The term "sea gull" covers more than sixty species. All are at home on water and are noted for their skill at rapid and sustained flight. They are primarily salt-water birds, although some live on inland lakes and marshes.

Species vary in size from that of a pigeon to a goose, but all are long-winged and web-footed, and generally white in adult plumage, with backs and wing surfaces a shade ranging from light pearl to gray to nearly black.

The great herring gull, with his three-foot wingspread, is the one most people see both inland and on the coast of the Northern Hemisphere. He breeds as far north as the Arctic Circle and winters as far south as the Gulf of Mexico. Usually this bird builds its nest on bare ground or rocky cliffs near water, in hollows of seaweed. The herring gull, besides being the most numerous species, is the fashion plate of his world, with snowy white head, pearly gray mantle, butter-yellow beak (heavy and hooked for ripping) and flesh-colored legs and webbed feet. His tail and under parts are white with black wing tips.



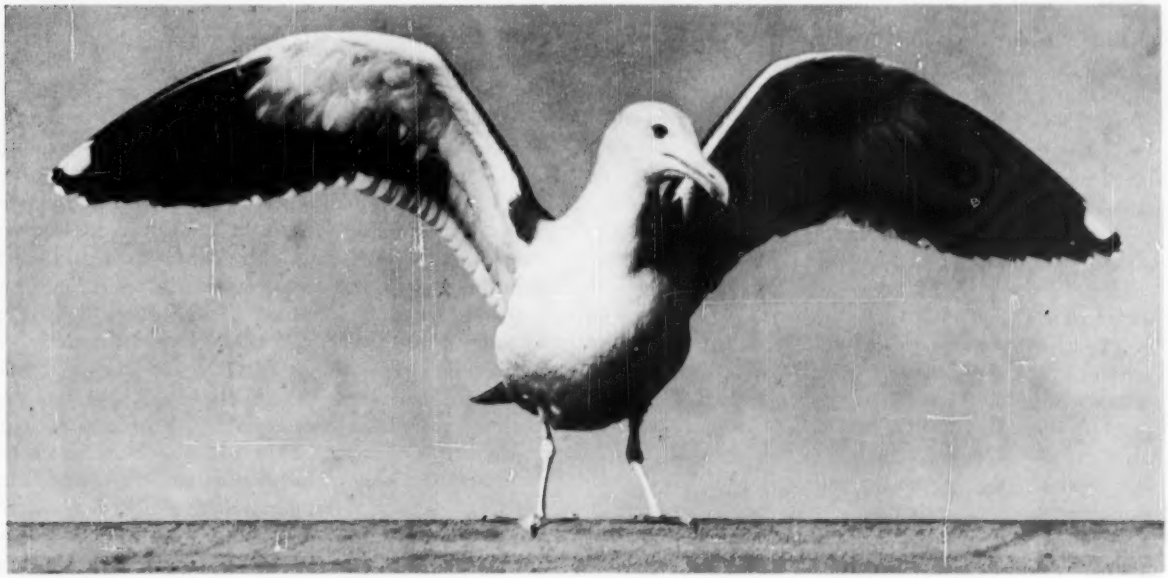
ROGER T. PETERSON FROM NATIONAL AUDUBON SOCIETY

Gulls are among the fashion plates of the bird world.

People the world over, it seems, consider the gull picturesque. Not long ago an *AP Wirephoto*, transmitted all the way from Australia, showed two sea gulls riding gloomily along on the backs of a pair of pelicans in Port Phillips Bay—for all the world like hunched mahouts on big-billed elephants. Gulls make appealing

The camber of the gull's long wings permit the bird to soar effortlessly into the teeth of a gale, or catch the mass of air pushed ahead by a curling breaker, riding it with a speed as high as thirty miles an hour.

ALLAN D. CRUICKSHANK FROM NATIONAL AUDUBON SOCIETY



DONALD DICKEY FROM NATIONAL AUDUBON SOCIETY

Adult western gull sitting on its nest, which contained three eggs.

pictures perched on buoys or piles, or battling for a mid-air morsel like angry opponents in a soccer game, or skimming the crest of spuming surf. The gull needs no zoo cage to be observed. He is always on display.

All species have their idiosyncrasies, but the common denominatior of all gull behavior is appetite. After Utah's terrible winter of 1848, in which the Mormon settlers had to subsist on small game, wild parsnips and thistle tops, the pioneers worked to exhaustion planting crops. Spring brought the promise of a great grain harvest, but suddenly grasshoppers appeared in vast black phalanxes that covered the earth like the locusts of Biblical report. Men, women and children turned out to try to repel the hordes, driving them into ditches, setting them afire. Yet the 'hoppers came relentlessly on.

Then miraculously from the west came myriad California gulls, which set upon the 'hoppers. "The thankful people left the fields to the white angels," says one account, "and in the morning found great piles of dead grasshoppers that had been eaten and disgorged by the greedy gulls. To escape the birds, the 'hoppers would rush into the lake, and in this way millions more were destroyed. The gulls kept up the good work until the scourge was past, and they became as tame as poultry." In later years the Mormons erected a monument to the sea gull in Temple Square at Salt Lake City.

The real wonder of the gull is his digestion. He can gulp a foot-long fish and while the tail is still in his beak the fishhead is being ground by muscular contractions in his gizzard, until it all works slowly to his small intestine. The bird disgorges the bones. Freeloader though he is, the gull seldom overeats; he merely eats often and adequately.

Worthy of investigation is the sea gull's cupidity-stupidity quotient. He is dumb enough to steal baited hooks but smart enough to gull a man out of his wits. Residents of an English village once saw a gull limping down the main street, unable to fly, and took it to the police station. There officers fed the bird bread and butter, nursed it back to health and turned it loose on the sea. A week later a gull limped down the same street and enjoyed the same bread-and-butter and nursing routine. When it happened a third time the police sergeant became suspicious; held out on the butter!

Do gulls sleep? Dr. Robert Orr, of the California Academy of Sciences in Golden Gate Park, says hardly a week passes without someone asking this question. The answer is: "Of course." The gull sits on the water, or on pilings or rocks, tucks his head under his wing, and has a good snooze. But he awakens easily, at the mere whisper of food.

The gull species with which I have had dealings is

the big, tough, loudmouth western, a white bird with a slate-gray mantle. He is the deadpan delinquent of our bird world, preying indiscriminately on rabbits, other sea birds, and at least one small boy with a brand new fishing rod. Using fresh clams for bait on an Oregon jetty, I was having marvelous luck until I laid my pole on a rock to tie a cod to my string. I heard a triumphant screech, and looked up to see my lovely new rod being transported toward the Aleutians by a western gull.

Let a hard-working diving bird surface with a fish and the western will harry it, driving it under again and again until the exhausted diver surrenders its catch. When the western happens not to feel up to such exertions he simply wanders about his neighborhood, grabbing fish that other birds bring to their young.

Usually this bird steals building materials from the cormorants for the gull's own nest, but otherwise around home he is a fairly decent citizen. He may help his wife brood over the eggs and feed the newborn "gullets." Young westerns keep to the nest longer than most sea birds, leaving only when their wings are fully feathered and strong enough to bat a colleague head over heels.

The parents' first responsibility is to teach the young to swim and steal. Launching the immature birds on the water, a small fish may be brought, shown them and let float on the surface. If the youngster is smart, it snatches; if not, a grownup does. After losing several fishes this way, the young bird commences to watch its parents as they filch food. It is not long before the new little western learns to scream loudly, swim, breast a gale, and snatch someone else's dinner.

Several years ago a great flock of westerns descended on Golden Gate Fields, the horserace track near San Francisco. They made a pretty picture but each time the horses broke from the starting gate and the crowd cried "They're off!" some 3000 excited sea gulls took off too. High-strung horses, unaccustomed to such shenanigans, would stumble and the favorites would fall back in the ruck. Horse players, who can cry as plaintively as any gull, berated the Fish and Wildlife Service until it finally granted permission to shoot ten gulls. This done, the dead gulls were hung on stakes as a warning. Either it was suddenly migration time or the gulls decided this company was too fast for them. They went away.

When a gull decides to go, incidentally, he is equipped to go all the way. Some migrating groups are known to travel some 25,000 miles a year. He is quite a machine, the gull. His nervous and circulatory systems are integrated so his feet do not get cold in the chilliest waters. The camber of his long wings permits him to soar effortlessly into the teeth of a gale, or catch the mass of air pushed ahead by a curling breaker and ride it at speeds up to thirty miles per hour. He has a built-in converter that enables him to drink salt water.

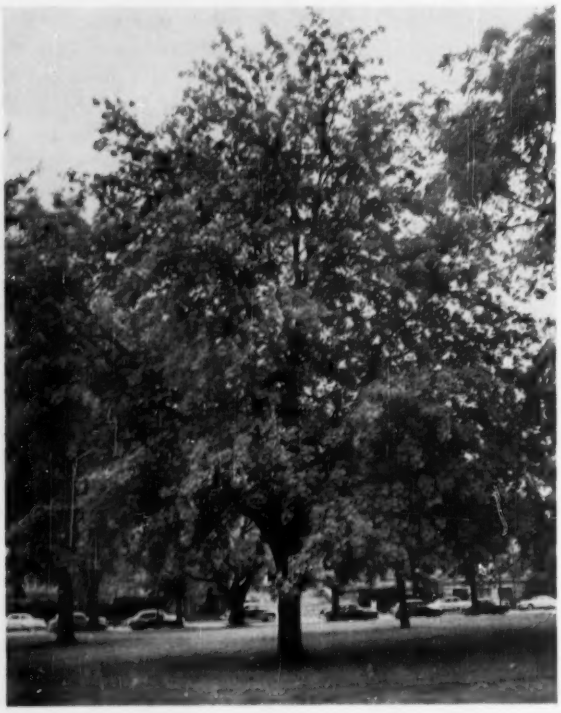
Sly and seemingly forever-hungry, sea gulls are pretty as a picture and noisier than Babel. They have been cursed as pests and blessed as angels.

WILLIAM L. DAWSON FROM NATIONAL AUDUBON SOCIETY

He is, in addition, Nature's perfect dispose-all. Scavenging in his boon to mankind. Aside from his very good services in cleaning up harbors and beaches, the gull has no commerical value. The eggs are not as savory as hen's eggs, and the flesh is well-nigh inedible.

The gull has little fear of man and is often quite gullible. It can sometimes be caught by the simple procedure of holding out a piece of bread. Occasionally, wild creatures rebel against the obstreperous bird. Rabbits will kick him in the beak when he flutters around the burrows to kidnap young bunnies, and once, at Catalina Island, a seal mother, angry at a gull's seizure of fish she was trying to feed her young, dragged a bird below and drowned it.

Despite this, and despite all the oddments they eat, gulls survive to a reasonably ripe old age. Some of them live ten years. With millions of gull eggs produced each year, and the fact that epidemics are almost unheard-of among these hardy scavengers, they apparently will always be with us, always screeching and scrounging for food, people taking their pictures and laughing at their antics, for they are as popular as they are populous.



Only in the spring, when its leaves and flowers unfold before other trees, can the Ohio Buckeye lay any claim to real beauty. It is Ohio's State tree.

OHIO FOREST SERVICE PHOTOGRAPH

# Like the Eye of a Buck

By RUTH H. DUDLEY

Not for beauty or fragrance did the people of Ohio choose their State tree. One can not honestly say that the Ohio Buckeye, *Aesculus glabra*, is famed for either, but it has played an important part in the history of Ohio.

In early days these trees grew all across the State. Pioneers had to cut many of them to clear the land for farming. The wood is not long-lasting but it is light in weight, soft, and does not split easily. Log cabins were built of this wood, cradles were shaped from its logs, and troughs hollowed out for catching maple sap. Even summer hats were woven from Buckeye shavings.

The Indians, it is said, gave the tree its name. The fruit of the tree, inside its husk, is shining brown with a pretty light spot. It looked like the eye of the buck.

One story credits the Indians with first calling Ohio people Buckeyes. At the opening of the first court in the Northwest Territory, in 1788, the High Sheriff, a huge, handsome man, rode on his prancing white horse at the head of a parade, flashing a drawn sword. He filled the Indians with such admiration they called him "Hetuck," or "Big Buckeye." The name stuck and passed on later to other important Ohioans. Finally all people of Ohio were known as Buckeyes.

The tree, itself, is not outstanding. It is sometimes called the Stinking Buckeye because of the unpleasant smell of its bruised bark. It is thirty to seventy feet tall, with a trunk about two feet thick and often forked. The tree's beauty comes mainly in early spring when its large, smooth buds unfold like some flower petals into five-fingered leaves. And, while other trees are still lost in winter sleep, large, greenish-yellow flower clusters open out from the ends of the upturned twigs.

The large seeds are poisonous to eat—for man or beast—although the Indians learned to leech out the poison.

The Ohio Buckeye grows from western Pennsylvania to northern Alabama and west to northeastern Kansas and southeastern Nebraska. A sister tree, Sweet Buckeye, *A. octandra*, does not have the unpleasant odor of the Ohio Buckeye, and is taller with brighter flowers. Because of the fruit people often confuse the Buckeye with the horse chestnut.

"Humphrey Bogart," youngest and most alert of the cats, enjoyed inserting a paw in Carl's jar and watching the beetle scurry around. However, the cat finally concluded that Carl was an unsatisfactory playmate and that the water in his jar was only for purposes of drinking.

*Science calls him Dytiscus; we call him*

# Our Beetle Buddy

By JOHN UNDERWOOD

*Illustrated by Vega Ihsen*

Our beetle, Carl, who was named for the friend who brought him to my wife and me from a shallow mud-bottomed pond near our Wyoming cabin home, is about as little trouble as a pet can be. And, so far as we can discover, he is about as unusual as a pet can be. Most of our friends say, "How ugly!" A few, more appreciative, say, "He's really beautiful!" All of them, whatever their reaction, notice him and comment on him.

Carl is a *Dytiscus*, a predacious diving beetle, and to our eyes at least as attractive as any guppy or goldfish of our acquaintance. He is slightly more than an inch long. His back, in sunlight, is black with a green sheen. A narrow border of gold outlines his body, with a crossbar of gold marking the pronotum. Underneath, his body is a somewhat duller gold, each segment marked by a thin black line. Of his legs, the rear pair are most in evidence, for they are longer than the others and are quite hairy. Presumably they assist him in swimming, particularly in making the sudden swift, twisting dives with which he seeks cover when the water in his half-gallon glass jar is disturbed. Again they are in evidence when he floats at the top of the water, his posterior tip barely out of the water as he fills the spiracles under his elytra with the air that he will breathe while under water. Then the hairy hind legs are laid peacefully halfway across his back in a slanting, elegant line, or are lifted straight up until their tips barely touch the surface.

Carl's jar was bare of anything but water for his first few days with us. Then a glass marble, tentatively placed in the bottom of the jar, proved so popular with him as a resting place that we added two or three small stones and a few seashells. Now he spends most of his under-water time clinging to one or the other of them, except when a sprig of watercress floats in the jar. This he particularly likes as a siesta spot, but the watercress grows some miles from our home and most of the time he must use the rocks and the shells for his naps. Or is he waiting there for a likely meal to swim or float by?

What to feed Carl was an immediate problem when he was given to us. As it was late in September, there were plenty of flies to be found, inside and outside the cabin. One or two of these a day seemed to more than satisfy the beetle. He ripped off wings and legs, and devoured the bodies.

But in time the housefly season passed. In the meantime a small minnow had been placed in the jar with Carl, for sociability. To our surprise, Carl killed him promptly and at his long leisure devoured him. But, as the Wyoming winter approached, minnows or other small fish became hard, if not impossible, to come by. Again,

chance helped us in determining an available formula for Carl's nourishment. A small fresh-water snail, placed in the jar for esthetic purposes, immediately became his prey. As there was a narrow open channel of water in the ice at the foot of the mountain lake beside which we live, we were able to pull small snails off the rocks all winter. With them, twisting and curling over each rock that we picked up from the water, were small fresh-water shrimps, and these, too, were popular with Carl. With the coming of warm weather in May, the shrimps disappeared from the rocks, but the snails have continued to be available. These are always on hand for him, crawling up the sides of the jar and easy prey. However, the beetle seems to prefer anything else that varies the monotony of a snail diet—flies, small gnats, small spiders, and an occasional baby sucker or shiner. Hellgrammites, or caddis-fly larvae, in season, are always seized with the beetle equivalent of growls of pleasure.

A small leech placed in Carl's jar attached itself to the beetle, and was finally eliminated only after a considerable struggle by the author.

Carl has had his moments of what seemed to us great danger. When "Humphrey Bogart," youngest and most alert of the cats that keep mice out of our cabin, discovered him he showed an active curiosity and interest in this new member of the family. A paw, gingerly inserted in the jar, would send Carl scurrying around the water in a way completely entrancing to Humphrey. But two or three days of this apparently convinced him that Carl was an unsatisfactory, if not downright dull, playmate, and from then on Humphrey decided that the water was there merely for drinking purposes. In time, the other more dignified cats decided the same. Presently Carl paid no attention to lapping pink tongues.

That danger eliminated, another horrible experience awaited. (Again, the horror may have been only from the observer's point of view.) We had put a very small leech in the jar one day, and Carl had found it satisfactorily edible. Another leech, slightly larger but still small, was placed in the jar. A few hours later I discovered that the leech was fastened tightly to the front edge of Carl's hard, glossy, right-hand elytron. Was the leech just resting? Or was it somehow sucking out what passes for life-blood in a *Dytiscus*? I lifted Carl from the water to my desk blotter, and, while he battled and squirmed, I succeeded in breaking off the rear half of the leech. Mentally out of breath, and fearing dry air's effect on Carl, I dropped him back into the jar. But a stubby half-leech still clung to him. Another struggle on the blotter, successful finally, and back went Carl into the jar. The only ill effects noted were to my nerves and possibly to those of my wife, who had no idea of what the wrestling match with the beetle—and the leech—was about until it was over.

The cold blasts of a Wyoming mountain winter came. Unwisely, we had chosen to spend the winter in our log cabin, which was built only for summer use. By February and early March, when the worst of the sub-zero temperatures and howling winds reached us, Carl had been with us several months. The cabin would have seemed a little dreary, a little emptier, without him. So it was with a foreboding that I discovered, one dark, predawn, cold morning, that the water in his jar, like that in the water bucket and the teakettle, was frozen nearly solid. By a fire quickly built in the stove, I slowly thawed the ice, while Carl hung motionless, apparently lifeless, in the center of the jar. Finally there was a slow movement of one of the hairy hind legs. As the ice gave way before the heat, there was more motion of his legs, a tentative turn of his gold-rimmed, shiny dark body. Then, while ice still hung scatteringly in the jar, he became active. The snails that had shared the jar with him during the night moved slowly along its sides. But Carl! Carl went into a prolonged, ecstatic, whirling, dancing, water-carnival solo, around and around the jar, and around again. I could think he beamed happily on me with his slightly protruding eyes. Perhaps a dream still lingered in him, a dream that he was back again in the pond, now frozen solid, from which he had come.

Carl has been with us almost a year as I write this. He has been little trouble. He breathes air, rather than getting his necessary oxygen from the water as does a fish, so that we need change the water in his jar only as often as is needed for cleanliness. His diet has not been difficult. He entertains us, and our friends. How long can we keep him? We wonder! Frank E. Lutz, in his *Field Book of Insects*, tells of a *Dytiscus* having been kept "three years and a half in perfect health in a glass vessel filled with water, and supported by morsels of raw meat." It is a goal to aim for, at least. And only time can tell if we, and Carl, will reach it.

## THE QUIET FOLK

*S. Omar Barker*

*There are woodland feet that go*
*Always pianissimo,*
*With a sound no alien ear*
*Ever can be tuned to hear.*

*Where the aspen and the pine*
*Shade the cautious columbine,*
*There are secret eyes that see*
*Life concealed from you and me.*

*Small, shy secrets, bad and good,*
*Lurk in every leafy wood,*
*Rightly due the designation:*
*"Not for human publication!"*

An extensive program of the Puerto Rican government encourages planting of acerola, and the BiB Corporation has contributed trees for planting in school yards. Teachers are instructed to distribute two of the fruits daily to the children, thus supplying additional vitamin C. First-graders of the Sebana Seca school receive their daily supply.

*Nature has put a special store of Vitamin C in a tropical shrub called*

# ACEROLA

By E. JOHN LONG

One of the richest sources of natural vitamin C has recently been discovered in a hitherto little-noticed tropical tree, called acerola. Acerola grows best in Puerto Rico, but it, or its botanical relatives, are also found down through the chain of West Indian islands, along the northern coast of South America, and in Central America.

As a small, fruit-bearing shrub, acerola, *Malphighia punicifolia*, has apparently been growing wild in Puerto Rico for more than 2000 years. The native Indians never cultivated it, but they attributed magical powers to its cherry-like fruit. This came about because they observed that those who liked the fruit's tart flavor rarely fell victim to the ailments that affected their fellows.

American doctors and health specialists, when they came to the island in the early 20th Century, were puzzled by the fact that residents of certain communities, despite their poor regular diets, rarely, if ever, had scurvy, beri-beri, or anemia. Medical men did not, at first, relate the well-being of these communities to the bushes whose fruit the natives relished.

It was a chance experiment in the laboratory of Dr. Conrado F. Asenjo, head of the Department of Biochemistry and Nutrition at the University of Puerto Rico's School of Tropical Medicine, that solved the mystery of acerola's "magic." Dr. Asenjo reports that he discovered some varieties of acerola juice that would assay as high as 4000 milligrams of vitamin C per 100 cc's of juice. This compares with an average high of 50 milligrams of vitamin C per 100 cc's of orange juice.

With some government assistance, attempts were made to domesticate the wild forest tree. At first acerola proved to be an extremely poor germinator. It took more than eight years of experimental work under

Dr. Conrado F. Asenjo discovered the extraordinary vitamin C content of acerola. He heads the Department of Biochemistry and Nutrition at the University of Puerto Rico's School of Tropical Medicine. Dr. Asenjo discusses the acerola with Maria Martinez, nutritionist.

Paula Core, teen-ager of Sebana Seco, picks acerola fruit just as the green fruit is turning red. At this time its content of Vitamin C is greatest.

director Dr. Arturo Roque and agronomist Enrique Molinary, of the University of Puerto Rico's Agricultural Experiment Station, before crops could be guaranteed on a scale large enough to interest commercial medicine manufacturing firms. Because the acerola fruit itself is highly perishable, and its juice hard to handle, special techniques and equipment had to be designed.

The Puerto Rican government is now engaged in a special program to encourage the cultivation of acerola trees on family plots, where the fruit may be easily obtained and eaten by the islanders. Under the direction of Dr. Lydia Roberts, who, at the request of the government, came from the University of Chicago to Puerto Rico ten years ago to study the population's nutrition needs, an educational program describing the uses and benefits of acerola fruit has been launched in the public schools.

Acerola trees are also being planted in school yards, where they are being cared for by students. Teachers are instructed to distribute at least two acerola berries daily, during the ripening period, to each child in their classes. At the same time the teachers point out the vital role played by vitamin C, which is sometimes called "the children's vitamin," in forming connective tissue and red blood cells, and for the formation of teeth and bones. Because the body cannot store much of it, the importance of adding some vitamin C to the daily diet is also stressed.

The acerola tree itself looks more like a shrub or bush, being seldom more than eight feet high. Its evergreen leaves are small and ovate. Rose-colored flowers in July are succeeded by a fruit the size and shape of a cherry. Some people find its acid taste tart, others declare that it is pleasant and refreshing. Its vitamin C

At Sebana Seca, some twenty miles from San Juan, Puerto Rico, the BiB Corporation has established an acerola plantation. Here pickers are at work gathering the fruit, or drupes, of this small tree or shrub. The juice will be processed for combination with other juices as a means of adding vitamin C.

content is greatest during the brief period when the green fruit is turning red, and it is then that the fruit should be picked for medicinal purposes.

Acerola is related to the Barbados or Surinam cherry, to the cerezo or cerezero of Cuba, the seneruco of Venezuela, and to some of the "wild cherries" of the tropical forests of Central America. Limitations of soil and climate confine the tree to certain areas, but modern canning methods will soon make the benefits of its juice available throughout the world.

At Sebana Seca, Puerto Rico, a pilot processing plant is now blending the natural acerola juice with apple, pear, pineapple, tomato and other juices as protective foods for infants and children.

The successful cultivation of acerola is significant, according to Dr. Asenjo, because "small amounts of juice with acerola, added to fruit juices poor in ascorbic acid, can produce blends with a vitamin C content well over the average orange juice. It is a very convenient manner of fortifying foods with vitamin C, without having to resort to use of the synthetic product."

Puerto Rican officials are looking hopefully at the little red-berried bush, not only as a most welcome "fountain of youth" for islanders of all ages, but also as an important addition to the island's economy in providing a new cash crop.

# Wild Animals Are Tough

By ROGER M. LATHAM

Lock a man in a refrigerated room, run the temperature down to zero, turn on some fans so he is standing in a strong wind, give him nothing to eat, and how long would he live? Perhaps two hours, maybe four, but certainly no more than overnight.

Put a ring-necked pheasant in the same room under the same conditions, and it may survive as long as three weeks. The man may weigh two hundred pounds; the pheasant three.

How do we know our wildlife is so hardy? Wild animals have proved themselves magnificently resistant to starvation and severe weather both in the laboratory and in the wild. A few years ago, State wildlife departments were spending hundreds of thousands of dollars each winter for grain to be carried to wild turkeys, ring-necked pheasants, bobwhite quail, grouse, and Hungarian partridges. Research men suspected that much of this winter feeding was unnecessary, and they set about to prove it. These biologists built a "cold room" where the temperature could be lowered to thirty degrees below zero. Not satisfied with this, they installed a large fan so that the birds could be subjected to a frigid blast similar to that encountered on a blustery winter night.

Then one kind of game bird after another was tested in the room. Without any food whatsoever, the pheasant and the wild turkey could survive this adversity for two to three weeks, and with food they did not seem to mind it at all. In an outdoor pen in mid-winter, pheasants lived for five weeks without any food. Ruffed grouse and mallard ducks were not quite so strong, but they proved that the ordinary bad weather would have little effect if they were able to find a little food occasionally. The Hungarian and chukar partridges also rated highly, but did not have quite the resistance of the larger birds.

The little bobwhite quail could not take it too well. But even this bird could put humans to shame. Singly, they were quickly vulnerable to the severe cold, but in a covey they could hang on for three or four days. In the wild, quail sit in a tight circle on the ground, tails in and heads out, each huddled tightly between the next two in the ring. This roosting circle was thought to be primarily protective, but the experiments showed that it is also an effective means for conserving body heat. As a result, game departments of the northern states are recommending that their hunters leave at least ten bobwhites in each covey, so the birds will have the greatest possible chance of living through the winter.

Birds are not the only game animals that are tough. Many black bears hibernate in a shallow depression in the ground, and sleep through the winter, apparently unmindful of the blanket of snow and sub-zero temperatures. And most amazing of all, the female bears give birth to their young in these refrigerated nests in January. The newly born babies, weighing only about a half pound and almost naked, get along somehow without any help from their sleeping parent.

Naturally, the Arctic animals are the most rugged of all. The musk-oxen, for instance, spend the long Arctic winter in temperatures that range between forty to sixty below zero for weeks. The misery is heightened by gale-like winds that sweep across the tundra for many days. To top it all off, these animals live exclusively on frozen mosses and lichens dug up from beneath the snow.

If humans possessed some of the fortitude exhibited by these wild animals, the weather they have to endure would be a snap. But all we poor humans can do is marvel and regard these remarkable creatures with ill-concealed envy.

*Christmas, when the symbolism of the tree means so much, is also a time to turn our thoughts to the importance of*

# ARBOR DAY

By HAROLD PALMER PISER

Trees are, perhaps, the most universal symbol of Nature's beneficence to mankind. They have been praised as such in literature, poetry and song. Whether in primeval stands of unspoiled beauty, in forests that yield products essential to man's existence, as protectors of watersheds, or as beautifiers of our homes and cities, trees are our friends. At this time of year the tree takes on added symbolism, brightly expressing the spirit of Christmas.

As our country was settled, forest trees were cleared to provide acres for the production of food, and space for the building of communities. At the same time trees served many needs of man, who usually took them as a matter of course. As the pioneer pushed westward, however, he came to great areas of virtually treeless expanse. One such region was the Nebraska of today, and it was there that, thanks to the inspiration of one man, trees came to have their "day." The man was J. Sterling Morton; the day was Arbor Day.

J. Sterling Morton was born in 1832, in the little town of Adams, New York. His family moved, when he was two, to Monroe, Michigan, on the shores of Lake Erie. There he grew up in a profusion of Nature and in an atmosphere of independent thinking and ideas. He attended Wesleyan Seminary at Albion, Michigan, and the University of Michigan at Ann Arbor, where his attendance ended stormily just before graduation.

Joining the staff of the *Detroit Free Press*, young Morton soon felt the urge to move west. Married in Detroit to Caroline Joy French, in October, 1854, he went with his bride to settle in Bellevue, Nebraska Territory. There he was immediately active in politics and in the battle over the site of the territorial capital. Defeated in his championship of Bellevue against Omaha, the young pioneer moved to Nebraska City, there, at twenty-three, to edit the *Nebraska City News*.

Morton immediately noticed the scarcity of tree-life about him, and the absence of the many benefits it bestows. Through his early writings for the newspaper, and later as owner and editor of the *Conservative*, as well as by personal example, he championed the planting, fostering, care and preservation of trees. Never exactly a "dirt farmer," Morton always considered himself a farmer, and first sod was broken on his farm in 1855. He was active in farm and horticultural affairs and widely informed on agriculture, constantly urging improved methods.

In 1932 a special stamp issue recorded the sixtieth anniversary of Arbor Day. At the right, the home of J. Sterling Morton in Arbor Lodge State Park, Nebraska City, Nebraska.

L. L. COOK PHOTOGRAPHS

Tree planting was ever foremost in his mind, as when he reported on plantings by farmers in Otoe County, which, he said, demonstrated "the fact that sufficient timber can be grown upon a quarter section of Prairie Land in the course of six years, to furnish the dweller thereupon a bountiful supply of firewood, and yet leave him One Hundred and Twenty Acres of prairie to cultivate. . ."

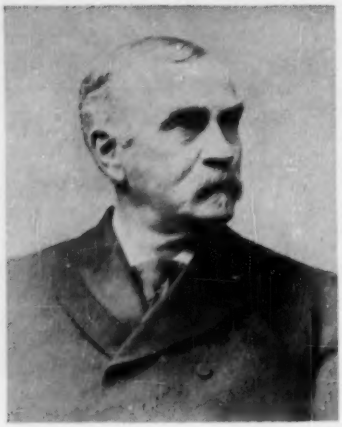
Envisioning Nebraska as a great agricultural and horticultural State, Morton urged the planting of fruit trees. Addressing the Horticultural Society in Lincoln in January, 1872, Morton closed his speech, saying:

"There is beauty in a well ordered orchard which is a 'joy forever.' It is a blessing to him who plants it, and it perpetuates his name and memory, keeping it fresh as the fruit it bears long after he has ceased to live. There is comfort in a good orchard, in that it makes the new home more like the 'old home in the East,' and with its thrifty growth and large luscious fruits, sows contentment in the mind of a family as the clouds scatter the rain. Orchards are missionaries of culture and refinement. They make the people among whom they grow a better and more thoughtful people. If every farmer in Nebraska will plant out and cultivate an orchard and a flower garden, together with a few forest trees, this will become mentally and morally the best agricultural State, the grandest community of producers in the American Union. Children reared among trees and flowers, growing up with them, will be better in mind and in heart than children reared among hogs and cattle. The occupations and surroundings of boys and girls make them, to a great extent, either bad and coarse, or good and gentle.

"If I had the power I would compel every man in the State who had a home of his own, to plant out and cultivate fruit trees."

Morton Memorial Square in Arbor Lodge State Park surrounds a statue of the father of Arbor Day. Below, the insignia of the Arbor Day Association, which is working for rededication to this observance.

ARBOR DAY
PLANT TREES
ASSOCIATION



Left to right, J. Sterling Morton, father of Arbor Day; Harold Piser, executive head of the Arbor Day Association; Charles Lathrop Pack, who, as president of the American Tree Association, carried on the tradition of this observance. Below, a scene in the Joyce Kilmer Forest in North Carolina, dedicated to the memory of the poet who wrote "Trees."

U. S. FOREST SERVICE PHOTOGRAPH

Meeting in Lincoln at the same time was the State Board of Agriculture, of which Morton was also a member. The Board unanimously adopted a resolution that he proposed as follows:

"Resolved, That Wednesday, the 10th day of April, 1872, and the same is hereby, especially set apart and consecrated for tree planting in the State of Nebraska, and the State Board of Agriculture hereby name it Arbor Day; and to urge upon the people of the State the vital importance of tree planting, hereby offer a special premium of one hundred dollars to the agricultural society of that county in Nebraska which shall, upon that day, plant properly the largest number of trees; and a farm library of twenty-five dollars' worth of books to that person who, on that day, shall plant properly, in Nebraska, the greatest number of trees."

Thus was Arbor Day born, to spread to every State in the Union, where it is established by legislative act or by official proclamation. Although the dates vary with planting conditions, the objectives are identical.

On the occasion of the first Arbor Day Morton wrote, in sincere and interesting style, a letter to the *Omaha Daily Herald*. He said:

"Trees grow in time. The poorest landowner in Nebraska has just as large a fortune, of time, secured to him, as has the richest. And the rain, and sunshine and seasons will be his partners, just as genially and gently as they will be those of any millionaire, and will make the trees planted by the poor man just as grandly and beautifully as those planted by the opulent. . .

"There is no aristocracy in trees. They are not haughty. They will thrive near the humblest cabin, on our fertile prairies, just as well and become just as refreshing to the eye and as fruitful as they will in the shadow of a king's palace.

"The wealthiest and most powerful potentate on earth cannot hire one to speed its growth or bear fruit before its time. There is a true triumph in the unswerving integrity and genuine democracy of trees, for they refuse to be influenced by money or social position and thus tower morally, as well as physically, high above Congressmen and many other patriots of this dollaring age. . .

"A collection of inanimate marbles may, for a few years, preserve the name, and entry, and exit on this stage in life's short play. But how much more enduring are the animate trees of our own planting. They grow and self-perpetuate themselves, and shed yearly blessings on our face. Trees are the monuments I would have and in their yearly tribute of emerald foliage, variegated flowers and blushing fruit, I would find my most acceptable panegyric. . .

"The cultivation of flowers and trees is the cultivation of the good, the beautfiul and the ennobling in man, and for one, I wish to see this culture become universal in the State."

In the years that followed, the father of Arbor Day continued to foster its observance. As President of the American Foresty Association, and as Secretary of Agriculture from 1893 to 1897, in Grover Cleveland's second Cabinet, he was always conscious of his "parenthood." J. Sterling Morton's final years were spent enjoying life at Arbor Lodge, a large and gracious mansion on the crest of a green hill to the west of Nebraska City. This home is now preserved as a National Shrine by the Nebraska State Game, Forestation and Parks Commission. It is called Arbor Lodge State Park and embraces 65 acres of well-care-for woodland, landscaped gardens, and the beautiful, white, fifty-two room mansion. Nebraska has grown from a practically treeless State to a leader in practical forestry. Certainly its first Arbor Day was the first large-scale forestation project in the United States.

Although the Arbor Day idea spread widely, in recent years there has been indication of a lessening interest in it. The purpose and significance of this observance seem to have been crowded into the background by a multiplicity of conservation and other issues. The late Charles Lathrop Pack, as President of the American Foresty Association, and through the American Tree Association, which he headed from 1922 until his death in 1937, carried the torch that J. Sterling Morton had lit. Through his free distribution of millions of copies of *The Forestry Primer, The Tree Planting Book,* and other publications, the tree planting army was kept on the march. He was a "guiding force."

It is hoped that this force will be renewed by the Arbor Day Association, which is organized under the auspices of the National Shade Tree Conference and with the support of the American Horticultural Council and the National Arborist Association. The Arbor Day Association urges "fostering and promoting a better understanding and love of trees, tree planting, care, preservation and conservation." It envisions a coordinated and cooperative joining of all related forces to revivify an ideal that has meant so much in the history of the conservation movement.

At this season, when it is a part of American tradition to give prominent place to the Christmas tree, it is also a moment to rededicate ourselves to Arbor Day. The Christmas tree represents God's bounty of good and plenty in spiritual and material realms; gleams as His created symbol of His "good will toward men." As the Christmas tree stands for such ideals, so also does Arbor Day commemorate, through its concern with *all* trees, man's gratitude for their blessings.

As Christmas reminds us of the best in man to be carried in his heart, and practiced every moment of the future, so also does Arbor Day remind us of the treasure of natural good created for our benefit. It should not be remembered only on a special day, but be present every day in our minds and purposes, since so many of our daily needs are satisfied through the treasure of trees growing about us. Arbor Day is truly *every* day for *everybody, everywhere.* Let us, then, make 1956 the beginning of a new and greater Arbor Day, because, in the words of its originator:

"Other holidays repose upon the past; Arbor Day proposes for the future."

## COAST REDWOOD

*Ten-thousand thousand rains have greened this place.*
*The somber giants thicken year on year*
*To unbelievable girth—increase in grace*
*Of branches, tier on coned and scented tier.*
*The great trunks in their velvet, deep and red,*
*Stand where all dusty summers fall and lie:*
*But almost out of sight, each lofty head*
*Is clean and tossing in a four-wind sky.*

*The one who walks in this cathedral hush,*
*However loud his tongue on city street,*
*Will talk in whispers and, upon the plush*
*Rug of forever, set his silent feet.*
*And he will hear dead kings and ancient wars*
*Speak quiet wisdom from the voiceless stars.*

*Elma Dean*

## SHORE-LINES

*Today at dawn I walked around a lake*
*But stopped and hid to see a bittern set*
*His nerves in line to spear where a minnow moved.*
*Feet in the mud, food in the water, the bird*
*Devoured him where he floundered on dry land.*
*I looked up then and saw a swarm of nighthawks*
*Divide, glide, curve, swerve, each on his own track.*
*One in the center of heaven's dome came down*
*And skimmed the ground to get his filmy prey.*
*Then rose some visiting mallards from the calm*
*Clear water, answering thus their urge to fly.*
*I saw them fade where those nighthawks had fared;*
*There, too, they seemed at home as on the lake.*
*These all, I know, were meant to be for me*
*A parable of my own citizenship*
*In many worlds at once. My very skin—*
*What is it but a shore-line not to bound*
*But to release me toward the universe*
*I say exists outside me, yet its breathing*
*Makes possible my breath, my sight, and these*
*My thoughts that sense a scheme in all I see*
*To make me what I am and hope to be.*

*Mims Thornburgh Workman*

Against painted backgrounds are placed the creatures that are central figures of these mounts. The subjects are made of seeds, seedpods, ferns, mosses, twigs, bits of bark and similar materials. Some of this the artist grows specially himself.

# Miniature Magic

By LAVINIA R. DAVIS

Sooner or later we all try to bring the world home in a tea cup! The autumn leaves and bunches of wildflowers to be seen on Sunday evening city-bound trains, old fashioned Wardian cases, and contemporary varnished gourds are all expressions of the urge to give lasting life within four walls to color and beauty enjoyed outdoors. Few have succeeded so well as an English painter currently producing miniature bas reliefs of a unique and highly original type.

In these miniatures, which range in size from three and one-half to six inches, a variety of birds and small furry animals stand out against flat, skillfully painted backgrounds. Not only are the details of color and proportion accurate, but the natural atmosphere, the good feeling of reality, is miraculously preserved. The small child reaches out to stroke the woodmouse as though it were alive, and even the apartment bound adult recaptures the fleeting pleasure of seeing the first oriole in a spring orchard.

Squadron Leader H. E. Hervey, M. C., the creator of these Nature mounts, happened on his engaging speciality fifteen years ago when he was working in Australia as a commercial pilot. One day, on a country walk, a small wooly seedpod captured his imagination and he brought it home and turned it into a mouse, using a matchbox for a background. Mr. Hervey's small daughter cherished the mouse as her dearest treasure, but he forgot it until World War II brought him back to England and command of the glider school at Haddenham. Then, as the need for recreation that had nothing to do with war grew urgent, Mr. Hervey remembered the mouse and began to make other and more elaborate mounts. Since then his hobby, which uses both his natural talent for drawing and a life-long interest in natural history, has developed into a full time and extremely successful career.

Squadron Leader H. E. Hervey, M.C., originated his special techniques of Nature mounts, thus giving expression to lifetime interests in both art and Nature study. He spends much time outdoors sketching and observing.

Mr. Hervey, who is vice-president of the Royal Society of Miniature Painters, lives in a four hundred-year-old cottage in Bedfordshire, within walking distance of many of the seeds, mosses, grasses and bits of bark he needs for his work. He also grows a number of rare plants and trees especially for his work, and encourages bird visitors by every possible means. Many of the small objects to be used in the mounts are collected a full year ahead to allow for shrinking and discoloration, and are carefully stored according to size, purpose and type.

Along with collecting his own material Mr. Hervey makes endless field drawings and keeps a notebook filled with detailed observations of color, proportion, and natural background. Judging from the gay vitality of the finished work, Mr. Hervey's intensive outdoor preparation stands him in good stead during the delicate and painstaking labor of recoloring and assembling his materials. He makes the "feathers" and "fur" in his mounts from six varieties of seeds, and creates the desired shape by fitting bits and sections of seeds together. Thus a split seed pod will often produce ears, a larger seed the body.

Another of the Hervey Nature mounts, which are now available in the United States.

Mr. Hervey's work, which has recently become available in this country, is well known in England and has been exhibited at a number of London galleries. Although the Nature mounts have been acclaimed by art critics and decorators as a unique and highly individual form of craftsmanship, it is to the Nature lover that they make their greatest appeal. Most of us in our attempts to dry, wax, stuff, or otherwise preserve a once living beauty are no more successful than the small child at the seashore who trys to dig up the reflected moon and put it in his sand pail. So we especially rejoice that at last an artist, who is also a naturalist, has succeeded in giving buoyant permanence to the perishable, and by means of his lovingly fashioned mounts has recreated outdoor enchantment in a small round frame.

# The Color of the Storm

By JESSE STUART

The sultry summer day yesterday brought shimmering heat, last night, and eventually, thunder and lightning. This morning the sky was overcast and we thought a storm was approaching. I sat on the front porch and observed the great green clouds of leaves. My father and Uncle Jesse Hilton always told me when the leaves spiraled up toward the sky to expect rain.

Now the oak leaves were twisting up from the strong, sturdy, boughs. The oak leaves had turned over, showing their soapy bellies to the wind and hot sun. If one observed closely he knew Nature was getting out of time, and something was about to happen. Now, soft winds began blowing and the green soft leaves rattled as if their throats were dry and they were asking for water.

The winds came faster and I knew there was something behind all of this. I got up from my chair on the porch and walked down the walk. I looked North toward Ohio, the way rains come, and there I saw, very low, on the horizon, just over the treetops, long, thin, racing clouds. Their bellies were as thin as those of fast-racing greyhounds! Behind these clouds was a smooth, gray cloud. This was it! This was the storm cloud. This one would bring the rain.

I never knew a storm had color until now. The leaves, pressed by the forerunners of messenger winds, were not a soft green as usual. But they had a pale, dry appearance. Many leaves with lighter undersides, such as the poplar, turned their lighter shades toward the wind and approaching storm. Even, the leaves were different. My father and Uncle Jesse had been right about the leaves and the storm.

Then, I looked down the valley toward Moore's Hill. I saw something I had seen before, but never as effective, and as beautiful! The great winds were carrying loads of rain across the earth in waves as if they were using this water from the skies to mop the earth, and everything growing thereon. These waves of water, carried by the wind, one after the other, were as white as clouds. They came into view and passed out of sight, while the small and giant trees bowed to the breaking point for almost thirty minutes while this storm passed over.

*Some sidelights on the care and feeding of*

# EARWIGS

By VEGA IHSEN

FOR THREE weeks, now, my winter garden has been peopled—or should I say insected—by two glossy black earwigs. Apparently four hatched out at the same time, but since the first few days I have seen only two. This duo seems to be thriving quite well on the earwig fare in my terrarium.

Earwigs are a rather inconspicuous, low form of insect life. They are about one-half to five-eighths of an inch long, and have the usual three body sections and six legs. The abdomen is segmented and flexible, and is finished off with a pincer-like structure. Since this is more pronounced in males, it appears that no romances will be forthcoming in my garden, for both my earwigs have a more feminine stern appendage.

One might wonder how a pair of creatures that normally inhabit dark woods can become so interesting. But when I consider that they are the only active, animated dwellers in my little glass world of ferns and mosses, they assume considerable stature.

I find myself searching them out first thing when I arrive at my office in the morning. The slender black bodies, antennae fluttering, usually can soon be seen plodding over the miniature clumps of earth, under moist winterberry leaves and up the stems of tiny sprouts, which emerged from seeds that were in the earth when I placed it in the garden.

According to legend, earwigs were supposed to crawl into people's ears while they slept, even penetrating the brain! Although untrue, this stigma has persisted; and thus the poor little earwig has never achieved any kind of insect glory.

Small and insignificant though they are, earwigs have a rather uncanny awareness of things about them. They seem to know me. When I peer closely into the terrarium, they will shake their heads, stamp their forefeet and look intently in my direction.

For the first few days the poor flightless insects (they have short, undeveloped leathery wings) spent their time endeavoring to crawl out of the terrarium. Time after time they would laboriously crawl up the glass sides of their prison. Their two front feet seemed to spread out and do the main bulk of the climbing; the other four feet seemed to be used mainly for balance and boost.

But, unfortunately for them, at the top of the glass a smooth, overhanging copper rim prevented further progress. So the hapless earwigs would lose their footing, fall to the ground and start all over again.

They must have tried hundreds of times before they realized, in their earwig way, that escape was impossible. Now they crawl around the terrarium, skirting the glass sides without attempting to scale them. Perhaps that is why they shake their heads and seem to stamp their feet at me.

However, I try to be a just warden and keep a tray of fresh water handy for them. Also, I make air available and frequently place fresh tidbits of food on the ground. They seem to like chocolate, apple, bread crumbs and nuts, and will spend long moments eating. Chunks of apple left overnight will be riddled with tiny grooves the next morning.

In their native state earwigs eat bits of vegetation, especially parts of flowers. Some types eat smaller animal life. On several occasions I have observed them tearing off bits of tender new moss growths. So, I guess that, even without my help, they could get along quite nicely in my garden.

I have never seen my captives at the water trough. Apparently they absorb water through their food, or maybe through the general moisture in the terrarium. Now and then I will saturate a small paint brush with water and offer it to an earwig. The creature will rear up on its stern pair of legs, and, holding to the brush with the other four legs, will apparently take a long drink of water.

I hope to experiment with other kinds of food, such as honey, meat, and milk. So far my friends do not seem to have acquired stomach ache from my offerings!

The earwigs are not at all friendly toward one another, and when occasionally their paths cross, they strike furiously at each other before continuing on their solitary ways. Perhaps each is thinking, "Why couldn't you have been a gentleman earwig!"

At this moment, one of them is perched on a sourweed leaf, twitching its antennae in my direction. So it is time to terminate this essay and break out the lunch-box!

PHOTOGRAPH BY NORMAN MERRILL

# A Monkey for Christmas

Text and captions
By HARRIET BURKHART

Two Siamese cats should have been in this picture with Mimi, but Genghis Khan broke away and ran howling to the opposite end of the house, where he hid under a bed. He doubtless has not forgotten that the monkey once threw a plate at him from the top of the corner cupboard, all in the spirit of play. Neither cat will stand for the tail-pulling and fur-sorting that are Mimi's idea of friendly overtures.

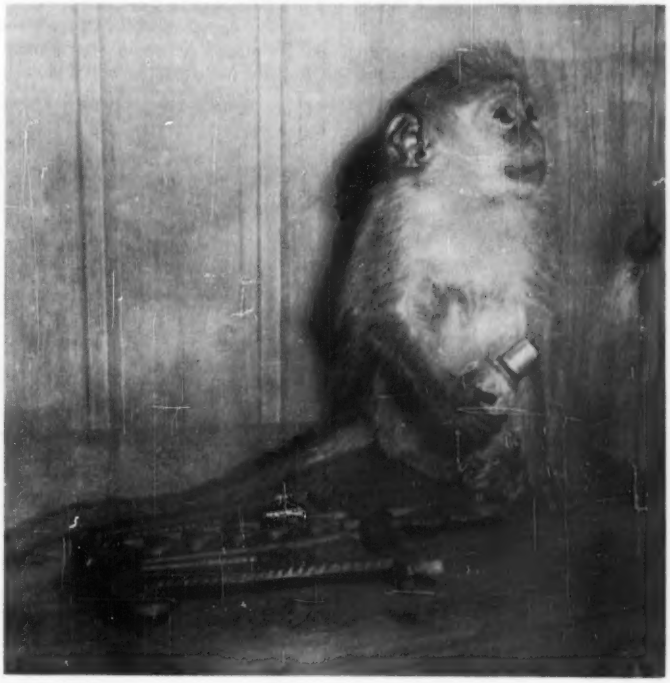
THE FACT that I am the owner of an African green guenon monkey is a concrete example of how one thing leads to another. If I had not needed a new battery for my darkroom flashlight, I would not have gone into the store in the first place. If I were not a bird bander, I would not have started catching the escaped canaries that were fluttering about and perching on lampshades and other displays, and I would never have seen the monkey at all.

Thus my little monkey came to me as a Christmas present. It came as a completely unexpected result of an idle remark made in an unguarded moment to my daughter, something to the effect that I had always wondered what it would be like to have a monkey as a pet. From the innumerable questions asked me about the monkey—her diet, habits, disposition, and general intelligence—it appears that other people wonder, too, even those who have no desire actually to own one, and a jungle-bred one.

I decided to call our new pet Mimi, because the short and simple name of *La Bohème's* heroine seemed a happy choice in a household where operatic arias—especially Puccini's—are often played and sung. Also, the name was appropriate for a pathetic and appealing waif whose little hand was cold, too. "Che gelida manina"—how cold the little hand.

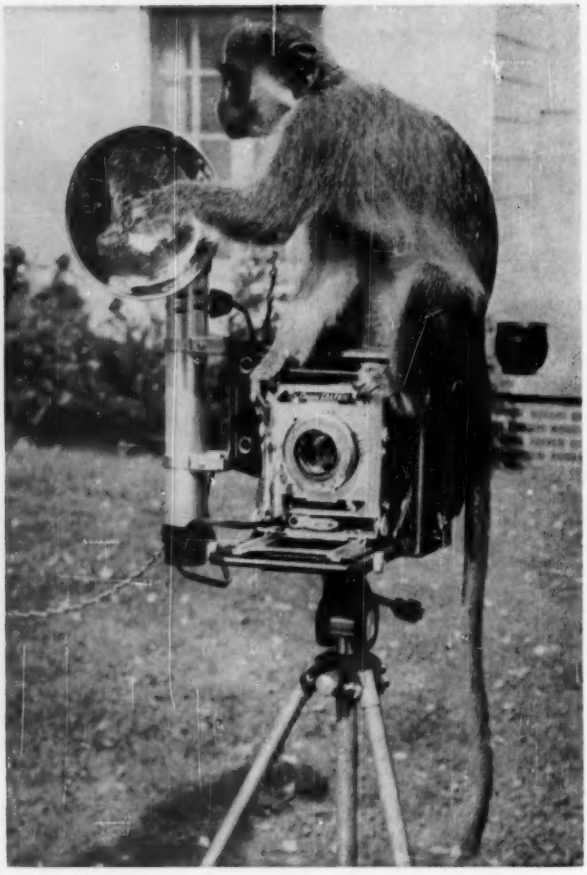
She was a timid, thin, little monkey at ten months,

PHOTOGRAPHS BY THE AUTHOR UNLESS OTHERWISE CREDITED



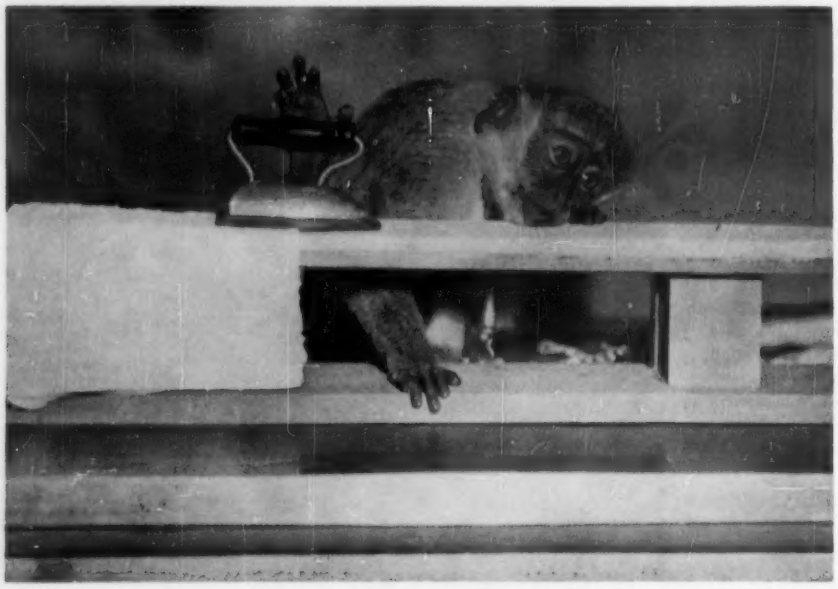
Mimi sits for the first of many portraits, exploded flash bulb in hand. Too strange as yet to dare to be anything but a good, quiet, little monkey, she was content to sit for long periods on the cherry stand in one corner of the kitchen, usually on or beside a small, black, iron trivet, and sort through a pile of bright-colored Christmas cards, examining each one, if perhaps upside down. In those days the author wondered frequently how the impression that all monkeys are mischievous ever became so widespread.

Every time we would pass the wren house Mimi would hear the baby birds and run up the iron pipe to peer in and often grab at the projecting nest material. She would no doubt have put her hand inside had she not been held.



Seated on the camera, Mimi tries to remove the flash bulb. She is naturally intrigued by all the gadgets of photography, and has repeatedly hurled herself upon both photographer and camera, often with near-disastrous results.

Ironing with one nonchalent foot, Mimi is at ease. This new game began one rainy day when I was foolhardy enough to do some ironing while giving the monkey a play period out of her cage. Instead of settling down with her toys, however, she found it more entertaining to snatch garments still hot from the iron and run, refusing to give them up when cornered. Ready to banish her to her cage, I glanced down in annoyance to where she sat on the floor under the ironing board, small wistful face upturned. In one tiny hand she held the sleeve of the shirt I was ironing and in the other a toy flatiron. I could not then believe that she was consciously trying to do what I was doing, or that it was anything but the merest coincidence that she had selected the only iron from a large market basket filled with toys. However, I have since seen many examples of her deliberate imitation of my activities.

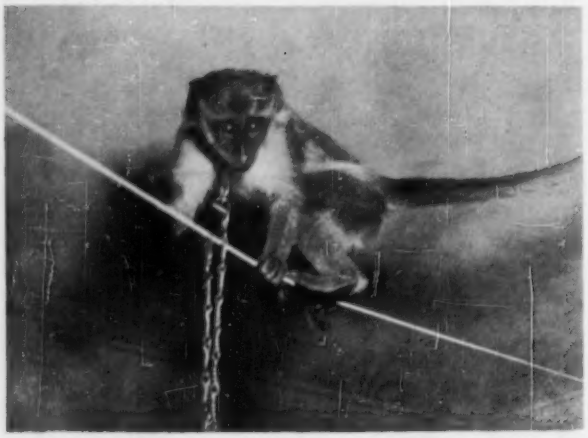


Mimi loves to turn the pages of books, carefully scrutinizing each one if she is not in a roughhouse mood. My niece, Linda Crandall, had been with me tutoring, and the monkey did much to enliven our onerous sessions with Latin. Often they were abruptly terminated by Mimi's attempts to sample the true flavor of the language of scholars by gnawing a page or two.

Mimi absently pulls her first chewing gum with the offhand ease of an expert. Ever eager to sample new delicacies, she broke off a small piece of gum, chewed it a little, and then decided to take another look at this strangely resistant tidbit before swallowing it. Since eventual swallowing seems inevitable, she is rarely given gum.

attractive in spite of rather sparse pelage and long, scraggly tail that looked as though it had recently been caught in a cage door. Her dark-gray facial mask frames bright opaque eyes—more the color of caramel than of amber—under pale, lashless lids. Her skin is sky-blue and her coarse fur yellowish-brown, except on the cheeks where two prominent swirls are almost golden. The combination of blue and yellow tones in their coloration may give the effect of green at a distance and when these monkeys are running through the green treetops; otherwise I cannot imagine why the word *green* appears in the common name of this species, *Cercopithecus sabaeus*.

Ever hopeful, Mimi companionably sorts through the hair of Martha Kelsey, a co-operative caller. (She often embarrassingly pretends to find something and even goes so far as to pop imaginary morsels into her mouth!) Men she regards with suspicion and fear, but she accepts most women on sight. She loves to play with their jewelry, especially earrings, which are apt to vanish into convenient cheek pouches, and to finger their clothing with the appraising air of an experienced shopper examining dress goods.



Walking tightrope on the slippery plastic clothesline in the laundry, Mimi uses her long tail for balance only, since it is not prehensile. Occasionally she will throw the end of it over something for a moment, but never depends on it for support. Incidentally this long, strong appendage was a godsend at first when she would not mind and had to be chased and caught.

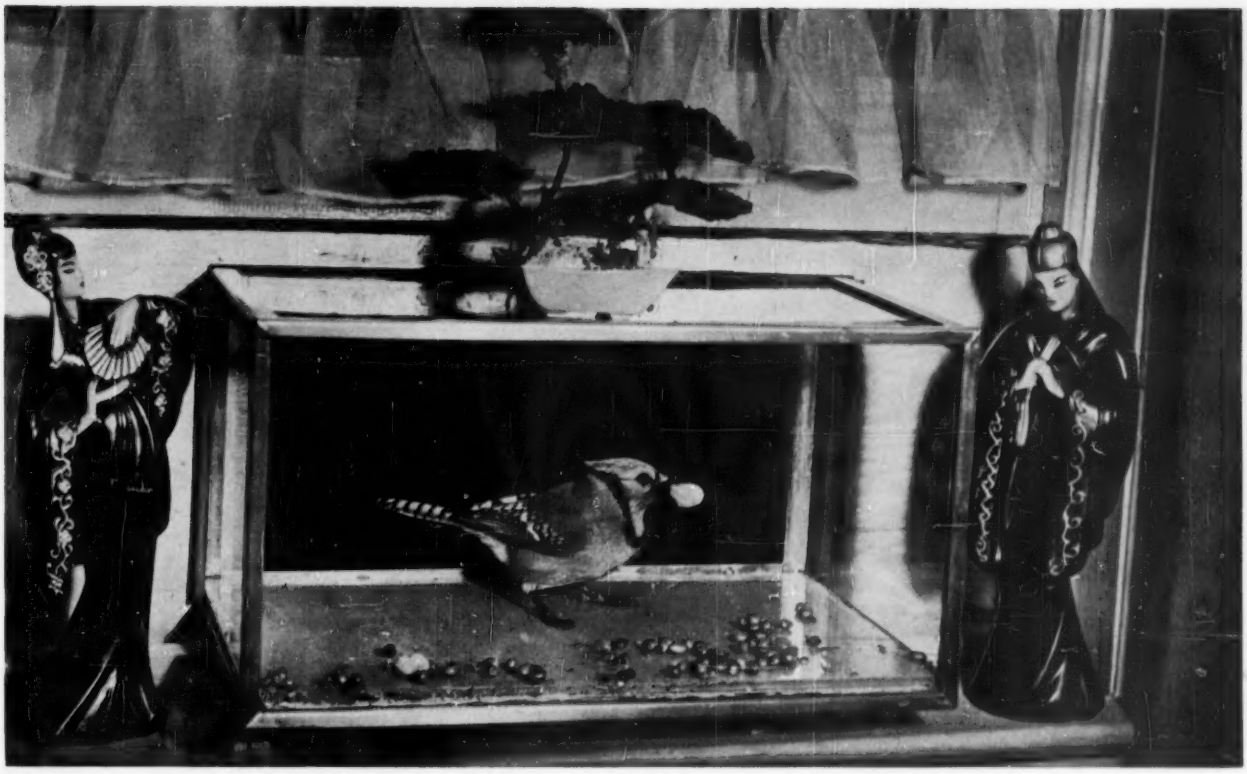
Mimi plays with a young friend, Jill Danner. With children she always displays especial animation, for all the world like a young child showing off. Lying between them on the bench is a windup toy Pinocchio which Mimi is fond of lugging around, hitched under a casual arm. She is annoyed when the noisy thing is wound up and stops it by holding the winding key.

No strangers to animals—vertebrate and invertebrate, mammal, reptile, amphibian—we were nevertheless startled to learn just how different one of the primates is from the many delightful and cherished pets we have known. These have included horses, dogs ranging in size from Great Dane to Scotty, cats, goats, rabbits, turtles, snakes, fishes, not to mention a succession of orphaned baby birds, from owls to sparrows. None of these pets even approached the monkey in intelligence, of course, and yet it was oddly disconcerting that she almost at once found a match and struck it.

We also discovered early, and painfully, in our dealings with Mimi that you just do not pick up a strange monkey and cuddle it like a kitten; you wait for the monkey to make the advances. Great progress in our relationship had been made when of her own accord she tentatively sat on my knee, then, a day or so later ventured as far as my shoulder, and finally began cautiously to sort through my hair. This meant I was really *in* at last, although not for some time could anyone make free with her in the roughhouse way she now welcomes, grinning broadly, or with pink mouth wide-open, to show the even rows of her thirty-two sharp white teeth.

Feeding Mimi has never been a problem, for she loves to try new foods and to cram her cheek pouches with the favorites—not from greed, but from atavism, according to Mrs. Lenore Brandt, former curator of the Cincinnati Children's Zoo. This habit appears to be a carry-over from life in the jungle, where often it is dangerous to take time to chew and swallow fruits, nuts, or seeds where they are found. It has proved better racial practice for the species of Old World monkeys that have cheek pouches to carry away as much food as possible in them for leisurely consumption in some place secure from enemies. (*continued on page* 552)

Mimi spends every pleasant day in an ash tree beside a small shanty built by my daughter in her childhood for her goats. The monkey delights in racing up and down the trunk of the tree and gets around through the branches, little encumbered by the chain because she is so deft about untangling it. When it is wrapped around a limb so many times that she considers the situation beyond her, she summons me by a special call of pure exasperation.



# Feeding Station, Four Floors Up

By JOSEPHINE KERESZTES

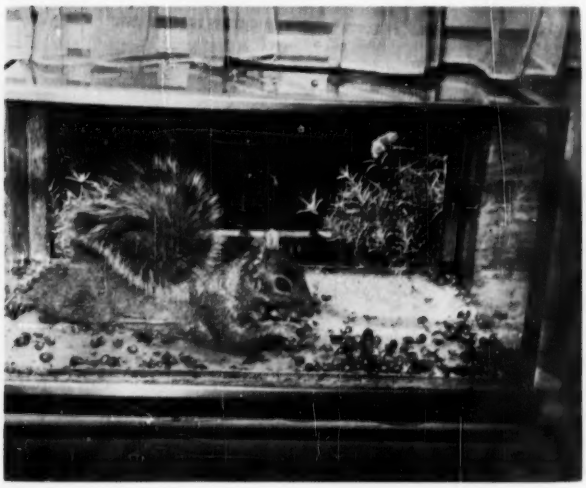
*Photographs by the author*

After some years of use our aquarium became so leaky that it defied repair. Yet it seemed that it must have some usefulness left, and we found that it did when it was installed as a feeding station. The window of an apartment on the fourth floor of a Bronx, New York, building would not appear to be a drawing card for wildlife, but we had our share.

The blue jay, about to depart with a peanut, first came to me when a neighbor's boy found the young bird injured. It was hurt only slightly and after nine days of care it was released. The bird appeared to appreciate its hospitalization, however, and comes daily to the fish tank feeding station. As though by way of thanks for nursing care, the jay brought, and left in the station, several rhinestones.

The squirrel was a frequent and ever-hungry visitor to the feeding station and its fourth-floor location is no discouragement whatsoever. One squirrel that has been a visitor for ten years makes himself quite at home (right, below). If there are no peanuts in the feeding station he knows where they are located.

Visitors to our feeding station are not varied, but watching blackbirds, starlings and sparrows, who accept our hospitality, has its compensations.



The great juniper forest of central Oregon is in a desert region that supports little growth, besides the juniper, except sagebrush

# Rough, Tough Juniper

By JOE VAN WORMER

*Photographs by the Author*

In the high desert of central Oregon, in a rectangle marked by the cities of Bend, Redmond, Prineville and the one-man town of Millican, stands a large forest of Sierra juniper. This powder-dry area of pumice and lava rock supports little else but sparse growths of stunted sagebrush.

This juniper, *Juniperus occidentalis*, is an evergreen without cones, and is probably best known generally as the source for gin flavoring, which comes from its purplish berries.

The tough, fibrous wood of this tree is prized for fence posts and firewood but has little value otherwise, except in the manufacture of wooden novelties, for which its unusual grain patterns has great decorative value.

Because it has a difficult struggle to stay alive, the juniper grows in twisted tortuous fashion. In many instances part of a tree dies, while the rest grows on as if there was insufficient food for the whole tree.

Occasionally range fires sweep across a portion of the juniper forest, and dead and dying trees twist and turn as the heat consumes them. Almost always some parts of the trees seem just too tough to burn. The twisted,

The trunks of many of the junipers in the Oregon forest are twisted tortuously, suggesting the difficult struggle of the trees for existence.

Live and dead junipers stand side by side, showing the short, stocky trunks of the trees and the twisted form that they take in their life struggle.

blackened remains assume odd and unusual shapes, much different from other trees that simply burn and disappear. But the juniper is a tree with character, and this shows even in the stumps, when these are all that is left. John Muir said this is a tree that "dies standing, and wastes insensibly out of existence like granite."

Some of the dead trees have interesting formations as the result of a hard life, fire and scant food and moisture to maintain them. This suggests a begging dog.

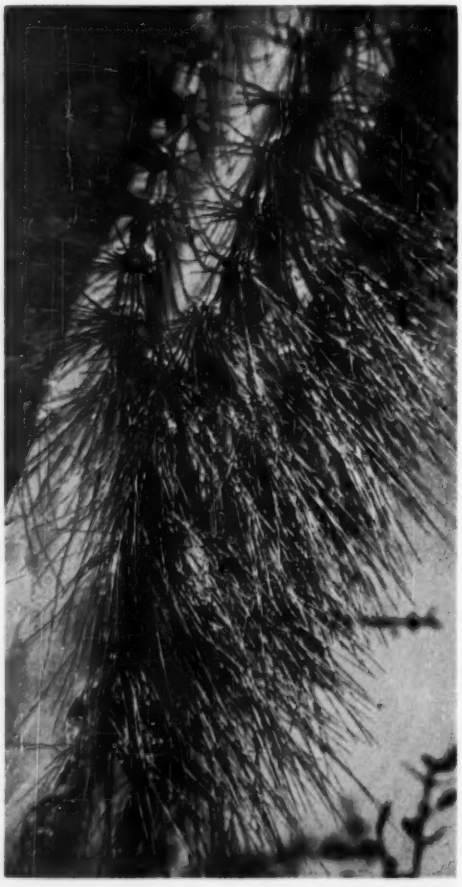
This formation in part of a dead juniper suggests a bit of modern sculpture. Some of the dead trees are reminiscent of driftwood, often used for decoration.

# "Old Man of the Desert"

By NELL MURBARGER

*Photographs by the author*

Not more than fifty individual plants of this rare cactus, *Cereus schottii*, are believed to remain in southwestern Arizona, and they were never numerous. This cactus is more common on the coastal grasslands of Sonora, Mexico. Below, the dense spines that appear on the upper portion of the branches of the cactus resemble a grizzled beard, giving the plant the name, "Old Man of the Desert."



POSSIBLY the rarest cactus species endemic to the United States, the "Old Man of the Desert" is confined to one small area along the southern boundary of Organ Pipe Cactus National Monument, in southwestern Arizona. Authorities on desert botany believe that not more than fifty individual plants of this species are now native to the United States, and that their number probably never exceeded one hundred plants. This species has been classified botanically as *Cereus schotti* and *Lophocereus schottii*.

Only on the coastal grasslands of Sonora, Mexico, is the "Old Man" of common occurrence. Here, too, it attains its perfection of growth, with as many as one hundred heavily ribbed, columnar branches, up to eight inches in diameter and twenty feet in height. Unlike its more famous relative, the night-blooming cereus, the flowers of *C. schottii* are small and inconspicuous. These blooms are seldom more than one and one-half inches across, with pink petals. In its nocturnal blooming habit, however, this cactus follows the lead of its more elaborate and spectacular kinfolk.

Distinguishing characteristic of the species is the dense thatch of whitish-gray, whisker-like spines. As much as three inches in length, these clothe the upper tips of the older branches.

# The Upland Plover's Wind Call

DESCRIPTION of the notes of this bird made me yearn for an opportunity to hear them over and over—to steep myself in the plover's music—and to see what my effort to word it would be like. Repeatedly visiting haunts of the birds in Loudoun County, Virginia; Lake County, Indiana; and Cook County, Illinois, failed to yield the desired experience; the plovers were always silent for me. Now, it seems likely that I shall not have another chance, so I content myself with presenting the impressions of others.

Like many birds, the upland plover (more correctly the Bartramian sandpiper) has a variety of calls; and these are not always clearly differentiated by describers. R. M. Anderson (Iowa) said the bird "has a mellow, flute-like whistle, very melodious, and often given from the top of a post by the roadside." Yet the note, I celebrate, is a flight song, or at least is often uttered while the bird is on the wing. An early, but impressive description is that of David Thomas, who heard the bird in southwestern Indiana in 1816. He writes of it as the land plover, but says it is also "called the rain bird, from its notes being more frequently heard in the calm that precedes changes of the atmosphere. But the mildness of the air may inspire its song, and the stillness allow it to hover easily over the fields where it loves to wander. From elevations in the air where it is scarcely visible, its note is heard to a great distance like a long shrill sigh. Who hears it in youth will hardly outlive the recollection."

T. S. Roberts (Minnesota) testifies that "One of the most fascinating and thrilling sounds in nature is the long-drawn, melodious *quai-le-e-e-e-e-e-e-e* cry of this bird, coming from far out over the prairie—a sweet, tremulous, plaintive whistle, rising slowly and descending again through the long *e-e-e* in a far-reaching curve." W. E. C. Todd (Pennsylvania) in his tribute, "a long, low, trilling call floats down the wind and dies away in a drawn-out eerie whistle," prepares us for the several comments of listeners who have likened the bird's voice to a sound of the wind.

Elliott Coues, in 1874, from hearing it in the Missouri River Valley, said, in part, "Their ordinary note. . . is a long-drawn, soft, mellow whistle of a peculiarly clear, resonant quality; but besides this, they have . . . a very loud, prolonged cry, sounding more like the whistling of the wind than a bird's voice; the wild sound which is strangely mournful . . . is frequently heard in the night . . . and is . . . one of the most remarkable outcries I ever heard." And J. H. Langille (eastern North America) agreed, perhaps paraphrased, "This prolonged, mournful, mellow whistle, more like the whistling of the wind than a bird's voice, may be heard even in the night, and is one of the most weird and never-to-be-forgotten sounds in nature." O. W. Knight (Maine) succinctly wrote: "song, a prolonged, weird, mournful but mellow, rolling whistle like that of the autumn wind," and E. H. Forbush (Massachusetts) elaborated on that description as follows: "Its notes are among the most pleasing and remarkable sounds of rural life . . . That long-drawn, rolling, mellow whistle as the bird mounts high in air has the sad quality of the November wind. Except the wail of the wind there is nothing else like it in nature. It is an ethereal sound which might well pass for the utterance of the fabled 'wind-spirit'."

The upland plover goes as far south as Argentina to winter; the wonderful call being given there shows that it is not a strict accompaniment of the breeding season. It thrills sensitive auditors there as well as here, and W. H. Hudson is an excellent witness to the fact. "Lying awake in bed," he says, "I would listen by the hour to that sound coming to me from the sky, mellowed and made beautiful by distance and the profound silence of the moonlit world, until it acquired a fascination for me above all sounds on earth, so that it lived ever after in me; and the image of it is as vivid in my mind at this moment as that of any other bird call or cry, or any other striking sound heard yesterday or but an hour ago. It was the sense of mystery it conveyed which so attracted and impressed me—the mystery of that delicate, frail, beautiful being, traveling in the sky, alone, day and night, crying aloud at intervals as if moved by some powerful emotion . . ."

Finally let one of our poets (Wm. O. Stoddard) speak:

"The long-drawn, mournful whistle of the plover
Sounds far away . . .
. . . wailing like some lost wind that is dying . . ."

Inspiring such sad reflections, the upland plover, threatened by extinction, may be thought of as chanting its own requiem.

W. L. M.

## HAY

*Almost as though I had forgotten*
*I found the scent of hay again*
*Cured in the slow and crisping sun*
*Untroubled by even the thought of rain...*

*Some while ago now I remember*
*I cut the grass and left it there,*
*It rustles sweet now as I go*
*And incense fills the air.*

*Allen E. Woodall*

*Conservationists and outdoor lovers join to save forever the*

# Mianus River Gorge

NEW YORK TIMES PHOTOGRAPH

A dense stand of hemlocks on the steep banks of the Mianus River Gorge. Below, an intimate glimpse of the Mianus River as it winds through its rugged gorge.

WESTCHESTER REPORTER-DISPATCH PHOTOGRAPH

TUCKED away in the northwestern corner of the Town of Greenwich, Connecticut, and adjacent Westchester County, New York, is a beautiful valley, with a tumbling brook called the Mianus River, which races down to Long Island Sound, unobstructed except for two storage dams.

It is because of the strategic location of this two-State watershed that the Mianus is of importance to the people of this rapidly growing area, only some forty miles from the heart of New York City. Everyone is aware of the importance of water to a community. How to use the water of this naturally rich watershed without destroying its natural beauty and wildlife is a real problem.

It so happens that I have lived in this historic valley for more than thirty years, and it is close to my mind and heart, and to our family and close friends. So we were happy when asked to join a group interested in preserving the wildest and least spoiled part of the Valley, known as the Mianus River Gorge. And when it was announced, early in June, 1955, that enough money had been pledged, and enough land promised by gift deed, to secure the first sixty acres needed to start the conservancy project, it was just cause for rejoicing. There were gifts from four large foundations, more than forty garden clubs, many Audubon societies, as well as from six hundred private individuals in a dozen eastern States, and from as far west as Arizona and California. The Greenwich Garden Club, of the Garden Club of America, contributed more than ten percent of the funds necessary to make the purchase of the first sixty acres, which cost $30,000. So saving Mianus River Gorge really is more than a local or regional project.

As is true of the famous Mettler's Woods in New Jersey, a virgin forest now saved, the Mianus Gorge is one of the last, perhaps the only, remaining tracts of wilderness land left within the New York metropolitan area. In fact, there are few suburban communities that can claim such stands of ancient hemlocks, and other large trees, as well as the lower growths of shrubs, evergreens and herbaceous perennials. Still standing are stubs of huge old chestnut trees, killed by the blight, and birches and other growths have come in to fill the few gaps. Towering old trees largely discourage younger growths, except for the princess pine. The many kinds of native wild flowers include a few stands of pink orchids. On the cliffs and other rock formations there are, in wide variety, ferns, lichens, mosses and other growths indigenous to this region. In the open spaces, there are thickets of bay-

By ANDREW S. WING

NEW YORK HERALD-TRIBUNE PHOTOGRAPH

A group studies the course of a field trip in the Mianus River Gorge, Gloria Hollister Anable holding the map. One of the handsome old hemlocks saved in the Gorge.

NEW YORK HERALD-TRIBUNE PHOTOGRAPH

berry, sumac, wild raspberries, blackberries, and such. In season one finds fungi of many kinds, including edible and poisonous mushrooms.

Birds, mammals and reptiles find this a handy hideaway, too. Raccoons are common, and there are, of course, squirrels, rabbits, woodchucks, skunks, opossums, weasels, and foxes. Minks, muskrats, bobcats, otters, and other seldom seen mammals, are believed to live in the area. I have seen a deer only once, a handsome big buck, standing under an apple tree and feeding on the windfalls. He watched us for a few minutes and then bounded off gracefully to the north. I have often seen ruffed grouse and an occasional wild duck. Wood ducks are known to nest in the Valley. Hawks, crows and owls are common, and so are many of the warblers. Other rare woods birds, including pileated and Arctic woodpeckers and woodcock, have been recorded.

I have seen only a few snakes, but there is a colony of copperheads that one of the local residents and patrons refuses to sacrifice. "They won't hurt you, if you don't bother them," he says, "so leave them as part of the balance of Nature."

For most people, it is the forest, which has certainly existed since early colonial days, or earlier, that is the chief charm of this area. For this *is* the "forest primeval," and the stillness and fragrance of the hemlock woods cast an irresistible spell over the visitor. Here one can relax as Thoreau did, close to the heart of Nature, and come away refreshed and cleansed in spirit. This opportunity will soon be available to those who choose to enjoy it. Of course, no one expects or wishes that a great many people will ever congregate in the Gorge in one day, or even over one weekend. But if only half of the nearby population will visit the Gorge once in a lifetime, it will be worthwhile. Many of us who live nearby will continue to make our periodic visits, enjoying the plainly marked trails, and without worry as to trespass.

There is something in "The Ravine," as we like to call it, for everyone—the hiker, the specialist in birds or other wildlife, the botanist, the angler, Boy Scouts, Girl Scouts and similar groups, or people who just want a quiet place in which to picnic without a lot of tramping. Here will be an oasis in the midst of an area that is rapidly being suburbanized.

In our region we are fortunate in having probably the finest landscaped parkways in the world; public golf courses and municipal and county beaches; various wildlife centers, such as the Ward Pound Ridge Reservation, the Greenwich Audubon Center, and the Fairchild Wild Flower Reservation. None of these has the wildness of the Gorge, or the gorgeous stands of hemlocks, beeches, oaks and other native trees.

On high land back of the Gorge old apple trees, seedlings from orchards of Russets and Baldwins, planted a

WESTCHESTER REPORTER-DISPATCH PHOTOGRAPH

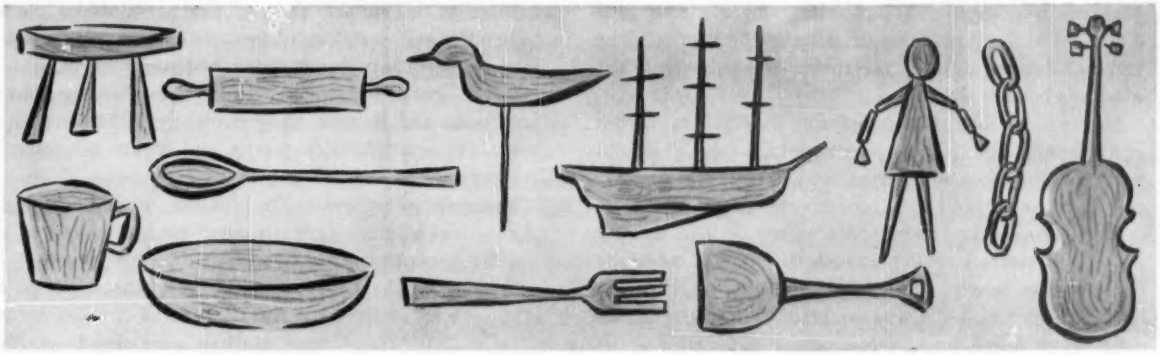
One of the rugged cascades that plunges into the Mianus River and its wild and rocky gorge.

century ago when this was "apple country," still bloom and bear a few edible fruits, which help to support the deer and raccoons and other wildlife of the area. There were farm roads, of course, "driftways" as we know them now. These were probably also wood roads and one at least was an ox-cart roadway to a quartz and mica mine. Whether this was ever of any commerical importance no one alive now knows, but it was worked, and a theory persists that the rose quartz was used to make religious objects. There used to be a gravel road nearby that had been surfaced with fragments of rose quartz, a durable as well as a beautiful material indeed.

The Mianus (Myanos) River was Indian country, the dividing line between Old Greenwich and Riverside, and Cos Cob, the latter being named for a famous Indian chief. Cos Cob was the site of an early Indian massacre in which more than 300 Indians were killed, most of them women and children. Upstream there are several villages and mills, including North Mianus ("Dumpling Pond"), site of a revolutionary skirmish, then Rippowam, and finally Bedford Village in Westchester, one of the famous unspoiled colonial towns surrounded by beautiful country estates, hill pastures and woodlands. Overlooking the lower part of the Gorge on the East is the village of Long Ridge, just inside the Connecticut line. There live the Anables—Anthony and Gloria—two founders and leaders in the movement to save the Gorge. She is Secretary and he is Treasurer. Mrs. Anable, a trained naturalist, having been on expeditions with William Beebe and on several of her own, is an ideal leader of groups who wish to see the Gorge. And her vibrant personality has had a great deal to do with the success of publicity in *The New York Times* and other publications. Without this the necessary financial support would have been difficult to find.

Included in the new list of officers and trustees are Robert J. Hamershlag, Katonah, New York, Chairman, also a founder; James H. Sachs, Pound Ridge, New York, Vice-chairman; Mrs. Allan F. Kitchel, Old Greenwich, Connecticut; Randolph G. Pack, Darien, Mrs. M. J. Edgerton, Stamford; Mrs. Avery Rockefeller, Greenwich; Mrs. Kenneth C. Faile, New Canaan; Mrs. Thomas M. Waller, Bedford Hills, and Raymond T. Benedict, Stamford, officers and trustees; and James Todd, Bedford, New York is also a founder and trustee. The advisory committee includes a number of nationally known botanists, executives in Audubon centers, museum directors, and members of conservation groups.

To give credit for the success of this drive to one person, or to a small group would be misleading. Mianus Gorge was saved by the combined efforts and support of a large number of people and organizations, ranging from school children and Boy Scouts to such influential groups as the Garden Club of America, the National Audubon Society and the American Nature Association. One family is giving $1000 as a memorial to their eldest son, who was killed in a Marine plane accident. He had known the Gorge and loved it. There have been gifts from people in Arizona and California, from Holland and Australia. Approval from the American Museum of Natural History, as well as from other scientific bodies, were invaluable. (*continued on page* 552)



*The jack-knife was a magic tool in the days*

# When Boys Whittled

*Illustrations by William H. Bodge*

By ROBERT C. BAUR

WHAT HAS become of the jack-knife once found in every boy's pocket? That magic tool transformed walnut, oak and cherry into gadgets both useful and amusing. "Reading 'riting and 'rithmetic" were dispensed in the little red schoolhouse, but whittling was the boy's alphabet of mechanics; a study of trees and woodlore. As he searched for whittling material, the boy with the jack-knife learned the woodland's secrets.

Boys were not concerned with scientific names, but they knew each tree for its usefulness to the knife. Candlewood, broom hickory, ironwood, withe-rod, spindle-tree, shingle oak, whistlewood and spoonwood are names that recall the jack-knife era. The woodlot, with its towering ash and chestnut, was the farm boy's hardware store, for there was a tree to supply his every need.

Early settlers, recalling the useful European ash as "husbandman's tree," found an abundance of ash from which to fashion woodenware. "Treen," as these wooden utensils were known, is derived from the Anglo-Saxon word "treowen" meaning "made of tree."

Ash knots were laboriously cut into cups and noggins. Bowls hollowed from black ash burls were as delicately patterned as a banded agate. The daily johnnycake was baked on ash boards laid upon the hearth. Longhandled shovels, or peels, of ash, placed bread dough inside heated brick ovens. Piggins, tubs and buckets, coopered from ash, mulberry and white cedar, were bound with hoops of swamp hickory or willow and viburnum withes.

Poplar plates and trenchers held venison stews, eaten with fine-grained, smoothly polished spoons of mountain laurel—the spoonwood of the forest. A clam shell wedged into a split hickory stick became an eating utensil or milk skimmer. An abundance of cherry supplied the home dairy with cheese-ladders, hoops for pressing curds and butter-paddles. Cinnamonwood, as the sassafras was known, yielded long-handled aromatic ladles for stirring soap. In the north, birch containers, as well as canoes, were waterproofed with resin of the balsam poplar.

Small but mighty, the ironwood is stronger than the oak and tulip, which tower over it. Hinges for cupboards, chests and doors were cut from the wood of this understory tree, which is exceeded in strength only by dogwood.

Yellow birch, the broom tree of northern New England, supported a flourishing home industry. A sapling six feet in height and five inches in diameter had all the characteristics of a good broom. Felled and trimmed, the bark was ringed a foot from the root end. The end was carefully slivered back to the barked circle with a jack-knife. Then the slender wooden core inside the slivers was removed and the pole shaved into a handle. When the shavings were trimmed and a rawhide hanger looped through the handle the broom was finished.

Birch brooms sold for six cents in Vermont in 1828, but fine splints and smooth handles might bring more on the Boston market. Girls too, handy with a jack-knife, made brooms to swap at the store for wearable finery.

Settlers moving westward, beyond the range of the yellow birch, made splint and scrub brooms of a hickory that still bears that name.

Hemlock brooms were easier to make. Heavily needled

branches were tightly bound with tamarack roots and a pointed hickory pole was driven into the bundle. The hemlock broom replaced the turkey-wing duster as the big birds became scarcer.

Making wooden heel pegs for shoemakers earned extra pennies, too. These pegs were split with knife and mallet from maple logs, then cut across the grain into circular boards about one-half-inch thick.

Although Yankee craftsmen acquired skill in making bowls and mortars of maplewood, the Indians made the finest maple bowls. For larger vessels, such as sap troughs, the jack-knife was pocketed in favor of Indian methods of burning and scraping the logs.

Wherever roots of the sugar maple penetrated the rocky soil, there was a demand for sugar spiles. Hollowed lengths of elder, basswood or sumac conducted the sweet sap from the trees to butternut troughs. Syrup was strained through hemlock boughs, or mats woven from narrow strips of basswood bark. A spruce branch tied to a stick was dipped into sap kettles to stop the syrup from boiling over. The boy whose jack-knife supplied these items was rewarded with a ladleful of boiling syrup to candy on the snow.

Roots of cedar, spruce and tamarack filled the need for tying material. Tamarack roots, of which Hiawatha sang, were Indian thread. Stronger than twine, the toughest most pliable roots were dug in beaver ponds.

The settler's appreciation for flowering dogwood was not limited to the blossoms. From its sturdy, shock-resistant wood they fashioned mallet heads, chisel handles, and wedges for splitting cedar, locust and walnut into fence rails. Replacing hay rakes with dogwood teeth was one of a boy's many winter chores. Dogwood knitting needles wore smoother with use and likely earned the whittler a pair of mittens. Used extensively in the manufacture of spindles, the dogwood was also called spindle-tree.

Axe-helves were carefully selected from hickory or white oak. Split into lengths and shaped with a jack-knife, the wood was scraped to ivory smoothness with bits of broken glass. A boy whose axe-helves were the proper length and curved to fit the hand could ask his own price. Northern woodsmen preferred thin helves to allow for mittened fingers, while farther south the handles thickened.

Nature supplied the whittler with an abundance of ready-shaped material. A scythe handle might be found growing around a boulder in a double bend. Cherry and hickory saplings that curved at the root were utilized as sled-runners and cart shafts. Sleds known as "chebobbins," constructed entirely of naturally shaped wood, hauled logs down the snow-covered hillsides.

Other gnarled roots served as slaughtering-hooks, potcrooks and harness hangers, while forked branches were converted into hayforks and yokes to restrain wayward hogs and ganders.

Necessity prompted crude ploughs, often little more than a forked gum log with upper prong hooked to an ox, the lower sharpened to scratch the virgin loam.

Straight sticks had their uses, too. Sassafras poles (thought to be lice repellent) served as chicken roosts and clothes were dried on elm rods hung before the hearth. Burial boxes of pine and cherry were measured with hickory saplings known as "coffin sticks," which were cut a few inches longer than the body. Others served as whipstocks, cart stakes, or bore aloft a summer's growth of runner beans. A young maple, around which bittersweet had choked a spiral pattern, made a decorative walking stick.

Splints for baskets were obtained by pounding black ash logs, for each year's growth could be neatly separated from the adjoining layers. These natural splints peeled off in the proper thickness for sturdy utility baskets. Splint baskets were also rived from oak and hickory, other baskets being patterned of willow, pine roots or birch bark.

Trees not always sacrificed their years of growth to serve man's needs. Marked with axe and knife, they denoted trails and commemorated events. Stately birches and lightning-struck oaks unofficially recorded the boundaries of farms and townships. Thoreau referring to the white birch as the surveyor's tree wrote: "It makes the best stake to look at through the sights of a compass except when there is snow on the ground. Its white bark was not made in vain. In surveying woodlots I have frequent occasion to say this is what it is made for."

Life was not all work or Jack would have led a dull life indeed. The following excerpt from a poem by the Reverend John Pierpont describes a few of the pleasures derived from his knife.

His pocket-knife to the young whittler brings,
A growing knowledge of material things,
Projectiles, music, and the sculptor's art.
His chestnut whistle, and his shingle dart,
His elder pop-gun with its hickory rod,
Its sharp explosion and rebounding wad,
His corn-stalk fiddle and the deeper tone,
That murmurs from his pumpkin-leaf trombone.

## TIME PASSES

*An empty house can soon deteriorate*
*And birds take over eave and chimney stone;*
*And hinges red with rust on door and gate*
*Are signs to show that time has come and gone.*
*The golden wasps will find a way to enter*
*After one pulls the shades and bolts the door;*
*They'll gallivant and die in cool mid-winter*
*On window panes, in beds and on the floor.*
*The flimsy, furtive moth will not be kind,*
*It takes the best one has to suit his taste;*
*The mice will enter, multiply and find*
*Books, manuscripts and everything to waste.*
*The sturdy walls one builds cannot shut out*
*Collective dampness and night-colored gloom;*
*And uninvited guests will bring about*
*Destruction to each nicely furnished room.*

*Jesse Stuart*

Spring was whistle time for, as spirits soared with bursting brooks and northbound geese, the urge to make noise was irrepressible. He had but to pucker his lips to celebrate the season, but whistles cut from greening river willows had more volume. While willow whistles resounded in the river valleys, the striped maple was the upland whistlewood because the bark slipped off so easily.

Fishing will ever be the country boy's favorite pastime. Shadbush blooms whitening the swampy lowlands announced not only the shad run, but reminded boys to cut themselves a sapling and dig some bait. An eager

lad, a supple shadbush or sassafras pole, and worm-baited hook were respected in any brook bottom.

Many friendly trees contributed to the whittler's pleasures. Lofty sycamores canopied streams that powered his willow waterwheels. The ash provided springy arms from which to suspend a swing, or bows to shoot goldenrod arrows. Tracing his steps reluctantly schoolward, a boy cut himself a spicewood toothpick, or searched the roadside scrub for a forked birch from which to make a sling.

The birch grew around the schoolyard, too, and the unruly were obliged to cut their own birch rods for chastening. So extensively was the birch used for this purpose, in both Europe and America, that an old herbalist described the birch as having many uses, but none better than for the beating of stubborn boys that either lie or will not learn.

Paper was scarce, so students economized by ciphering on scrolls of birch bark. Sets of arithmetic rules were copied on birch bark to provide individual textbooks. Letters were made with lead plummets of various shapes, cast in wooden molds cut by a jack-knife.

Sermons were penned and letters learned by candlewood, smoky pitch-pine knots that sputtered brightly upon hickory withes set in the chimney corner. Shaggy strips of hickory bark were also burned in backwoods homes, and tapers tightly rolled from birch bark shed light and discouraged mosquitoes, too.

The jack-knife left its mark on the schoolbench and kitchen table, as well as wayside birch and beech. When he grew older the whittler lavished his art upon his sweetheart. Cherry stones, butternuts and peach pits, intricately carved and strung on ribbons became cherished keepsakes. A hickory nut was often a challenge that resulted in a grotesquely carved face.

That venerable backyard patriarch, the apple, not only shaded the lover's rendezvous but supplied wood for shuttles, welcome gifts for the girl with a hand-loom. An applewood shuttle was shaped as carefully as a ship's hull, scraped, hollowed out, tipped with steel, and burned with the maker's initials.

Wooden busks were proper gifts, even in that puritanical age. Embellished with hearts and initials, these hand-carved strips of birch or apple were wedged into corset stays to maintain the fashionable long-waisted figure.

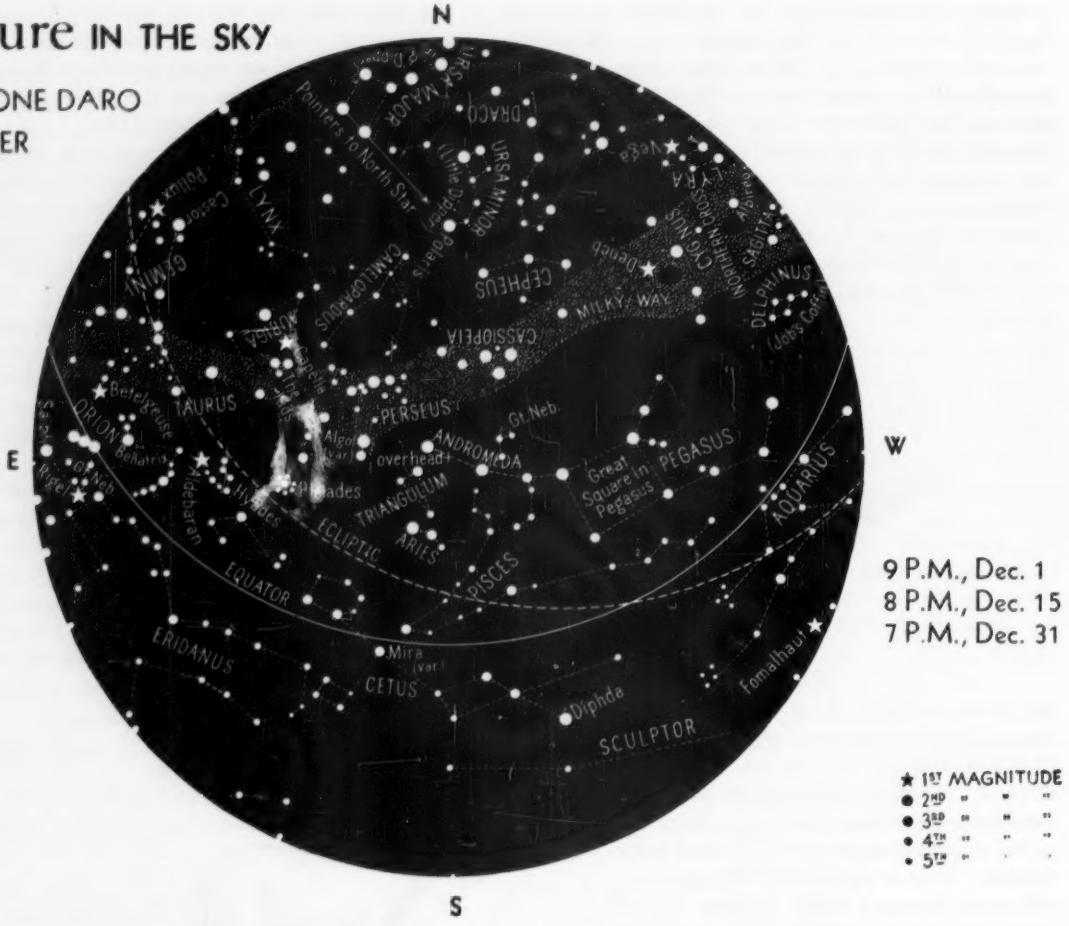
Although whittlers could afford to be extravagant, Yankee thrift ordained that each piece of oak and maple be utilized. Even the shavings were saved for tinder. A jack-knife proved the undoing of one young man, who carelessly whittled away his girl. While asking her father's permission to wed, he

eased the tension by whittling upon a piece of pine. When he had given account of his assets and the stick dwindled away to nothing, the shrewd old farmer dismissed him. Anyone who wasted a good piece of wood, he declared, would make an undesireable son-in-law.

While a clever lad might swap a rabbit or pair of skates for a knife, most knives were earned by chopping wood and hoeing corn. Appropriately a jack-knife is defined as a boy's knife and from every indication he earned this tool. Keeping his knife sharp and shining was a matter of personal pride, but woe to the lad who whetted his blade or whittled on the Sabbath. But at Christmas time the jack-knife was on many a boys desired list, and likely to come from aunt or uncle.

# Nature IN THE SKY

By SIMONE DARO GOSSNER




To use this map hold it before you in a vertical position and turn it until the direction of the compass that you wish to face is at the bottom. Then, below the center of the map, which is the point overhead, will be seen the constellations visible in that part of the heavens. Times given are for Local Standard Time.

# The Royal Family

THE CRISP cold darkness of long winter evenings is particularly well suited to the study of constellations. The sky is more apt to be free of haze, and fainter stars are more easily seen. Bundle up comfortably, get a good star map and a flashlight by which to read it, and set out to find a place where you will have a reasonably unobstructed view of the sky. The map on this page will provide an excellent start. It is advisable to dim the flashlight by covering it with a thin piece of paper, because the eyes must remain accustomed to darkness.

Personally, I have always found it easier to face north first, looking for Polaris and locating the familiar constellations that surround it. The relative positions of the Big Dipper and Cassiopeia give at once the proper orientation, and it becomes a simple matter to proceed from there to the neighboring star groups.

There are many stories in the sky. Most of the constellation names in use today are borrowed from Greek mythology. But the Greeks themselves inherited their myths from older civilizations. The tales were often modified, or even distorted, and many versions exist for each story, depending on the historian's preference.

As an aid to memory, however, these legends of gods and heroes of antiquity are invaluable in whatever form they are told. They teach us to connect certain names by the thread of the story. Then we find that these names are precisely those of constellations grouped together in the sky.

Such, for example, is the story of the Royal Family—Cepheus, Cassiopeia, Perseus and Andromeda. Cepheus, who was a king of Ethiopia, had a lovely wife, Cassiopeia, and a beautiful daughter Andromeda. One day, the queen had the misfortune to offend a sea nymph. In her wrath the nymph sent a sea monster, Cetus, to

ravage the coast and to terrorize the king's subjects. In order to avoid the complete destruction of his kingdom, Cepheus was told that his daughter must be sacrificed to the monster. The poor princess Andromeda was chained to a rock, waiting to be devoured by Cetus.

Just around that time, the hero Perseus, who was the son of Jupiter and Danae,. . .but this is another long, long story. Anyway, Perseus had slain the terrible Medusa. From her blood had sprung the magnificent winged horse, Pegasus. Here was Perseus, flying back on the horse, still holding his sword in one hand and Medusa's head in the other, and whom should he see but poor Andromeda, chained to her rock. The rest of the legend needs hardly to be told. Perseus slew the sea monster, married the princess, and they lived happily ever after.

Consult your star map and you will see that they are all there together, in the sky. Cepheus is very faint, but of course he never was very important in the story. One of his stars, however, has played an important role in astronomy. Delta Cephei is the prototype of the Cepheid variables. It varies in brightness over a range of nearly a magnitude, fading slowly for about four days, and returning to its original brightness in somewhat less than a day and a half.

This perfectly regular variation in the brightness of the star is caused by a kind of pulsation. Several hundred Cepheid variables are known. It is a remarkable fact that the duration, or period, of the pulsation is directly related to the intrinsic brightness of these stars. Thus, by observing the period of a Cepheid, we can determine its intrinsic brightness, or absolute magnitude. By comparison with its apparent magnitude, an accurate estimate of its distance may then be made. This method of gauging distances is one of the classical yardsticks of astronomy.

Two other stars in the Royal Family are well-known variables. One is Beta Persei, which the Arabs named *Algol*, "the Demon," the other one is Omicron Ceti, which is called *Mira*, "the Wonderful One."

Algol is an eclipsing binary. This means that what we see are actually two stars so close together that the naked eye cannot distinguish them. They revolve around each other in such a way that, for a terrestrial observer, they are alternately side by side, or in front of each other. In the first case we see their combined brightness, whereas in the second case we only see one of them, the other one being eclipsed. The whole cycle takes two days, twenty hours and forty-nine minutes, after which it starts all over again in the same manner. Some time during the cycle, the star decreases rapidly from the second to the third magnitude in an interval of five hours, then, in the next five hours, it returns just as quickly to the second magnitude.

Mira is a long-period variable. Its period is of the order of one year, although it is not constant and may differ by a few weeks from one cycle to the next. The star has one of the largest magnitude ranges known in that category. For five or six months of the year, it is a naked-eye star of intermediate brightness. Then it slowly fades until it can no longer be seen, except with a telescope. The light intensity at minimum is less than one-hundredth of the intensity at maximum. In astronomical terms, this means a drop of more than five magnitudes. After another six months Mira, the Wonderful, is visible again.

Algol and Mira are both identified on our star map. Of all the stars in Cepheus, Delta is farthest away from the North Pole and should be easily recognized.

## EXTREMES OF SIZE

*The telescope has hurled*
*A sight to probe the vast*
*With galaxies that whirled*
*On chill years of the past.*

*But in the microscope*
*The future we may see.*
*A drop's unfathomed scope*
*Contains infinity.*

*There may be star on star*
*Within this shrinking stem.*
*To tininess we are*
*The universe to them.*

*Daniel Smythe*

In the month of December, the New Moon will occur on December 14, and the Moon will be full on December 29.

The winter solstice will take place on December 22, at 10:12 A.M., Eastern Standard Time.

Mercury will not be visible in the early part of the month because it will be in superior conjunction on December 4. By the end of the month it will appear low in the southwest, in the evening sky, setting approximately an hour after the sun on December 31.

Excepting the Moon, Venus will be the brightest object in the sky. It will set two hours after the sun on December 15.

Mars, in Libra, will rise at about 3:30 A.M. on December 15, and will be visible in the southeast before sunrise.

Jupiter will be found in Leo, east of Regulus. It will rise at about 10 P.M. on December 15, passing nearly overhead and remaining visible for the rest of the night.

Saturn, in Libra, will rise at approximately 5 A. M. on December 15.

An annular eclipse of the sun, invisible in the Western Hemisphere, will take place on December 14. The path of the annular phase will start in northeast Africa, passing over Khartoum and Djibouti. It will then go across the Indian Ocean to Indo-China, passing over Bangkok and ending at sunset in Formosa. Several American expeditions will travel to various eclipse sites.

Partial phases of the eclipse will be observable in central and east Africa, Madagascar, eastern Europe, the Arabian peninsula, the eastern part of the Mediterranean, Asia Minor, China, India, the Indian Ocean, Burma, Malaya, Indonesia and the Philippines. The maximum duration of the annular phase will be twelve minutes and nine seconds.

Two meteor showers will occur in December, the Geminids on December 9 to 13, with a maximum rate of 60 per hour, and the Ursids on December 21-22, with a maximum rate of 18 per hour.

# Nature IN THE SCHOOL

By E. LAURENCE PALMER

Professor Emeritus of Nature and Science Education, Cornell University, and Director of Nature Education, The American Nature Association

**Backward Glance**

I WAS "BROUGHT UP" on *The Youth's Companion*. Besides those wonderful stories of the Old Farm, by an author named Stephens, I remember particularly three articles. One of these concerned a boy who bought a blue tie at a bargain counter and then had to buy shirts, socks and other equipment to match, making the tie bargain a sour one indeed. I have frequently profited by that story. The second article dealt with the destruction of Niagara Falls by the power interests, which were taking more than their share of water. I wrote a high school speech based on that article, and ever since have been concerned with the conservation of our water resources. The third article was entitled "The Backward Glance." It was not only the stimulus for this article, but, through the years, has saved me time, money, friends, and kept me from embarrassment.

The original story dealt with a youngster who was forever leaving things behind when he went for a picnic, fishing, to school, or on any journey. He never checked up on himself to see that he was prepared to do what he had set out to do. He could never find his cap, and his clothing was always a sight. His room never looked neat, and you know the rest of that story, of course. Finally, an accumulation of difficulties made him realize that something was wrong in the way he did things. Someone suggested that he adopt the practice of the "backward glance"; check up on himself at frequent intervals. Of course, the author overdid the idea and changed our hero into a paragon of efficiency and success. However, to this day I find myself taking that backward glance with profit on all sorts of occasions. Almost invariably when I leave a hotel room, or a Pullman car, I look back. On occasion, when I have failed to do so, I have had experiences that make me more watchful. Once I had to rewrite a whole university bulletin. Again, I forgot and left a live snake in a box in a Pullman car. What happened after that I do not know. Another time, the family left some expensive medicine that had been described as a "must" by the doctor, only to find that, without the medicine, a spectacular recovery took place. But I definitely remember cameras, expensive gifts, books and even a love letter that I recovered when I went back for the backward glance.

### Look backward to progress

Now why should I write all this on a school page? Simply I want to suggest that while it is highly desirable that we recognize the desirability of progress, sometimes the best progress is made when the past is best understood. Scientists the world over are fighting disease, poverty, the profligate waste of natural resources, war and injustice to the underprivileged groups. In not one of these cases can progress be made without a backward glance to give some light on what brought about the undesirable situations.

There are great areas of the earth where human life is not considered to be so important as we assume it to be here. In some areas most of the people have outlived their productive usefulness in their thirties. We want to help them; but how? Is it good sense just to give them food and clothing and let them continue to live as they always have? We do not want to make them live as we do, but we do know that unless they live differently in some ways it is well nigh impossible to better their lots.

Let us glance back and see what has happened in similar situations in the past. In the town in central New York where I have lived for a half century, it was once unhealthy to live in the lowlands. At another time, the town was nearly wiped out because of a bad water supply. Tuberculosis was once accepted, more or less, as a necessary evil. We have found out how to meet these crises, and now, when a critical situation arises, the powers that be take a backward glance, evaluate the situation, adopt the necessary disciplines and away we go, growing and growing. Let a few dogs get hydrophobia and the vets step in and meet the situation after they have checked up on how it developed.

### Problem of the Nile

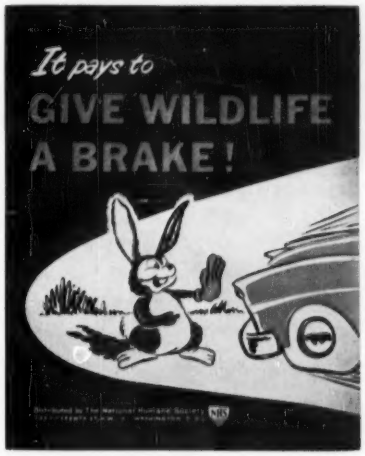
Take another situation farther from home. In the lower Nile, great numbers of human beings suffer from schistomiasis, a disease that affects the spleen, bladder, liver and large intestines. Shipping free food and clothing to these people would do no good. We know that this disease is caused by flatworms that live their larval stages in snails. We know that there are at least two general types. One gets into the water and into the snails, and, eventually, into healthy men, who may come in contact with the snails because of human urine freed into the water. Another type gets into the water through human manure. We have tried to attack this problem by the construction of sanitary outhouses, but in one community where such structures were built they were not allowed to be used, but were pointed out as show places to indicate the progress being made towards civilization. A backward glance at the whole picture suggests that maybe the problem can be attacked by eliminating the snails. We know that in the part of the world where I live we have snails of the same genus as those that cause the trouble in the River Nile. We know that many of these snails are killed by the bloodthirsty larvae of certain flies. Sometimes as many as 95 percent of the snails in a pool may be killed in this way. We also know, in part through investigations of a Prof. C. O. Berg of Cornell, that these flies may be killed by a parasitic wasp that goes underwater to attack the flies. These wasps may seriously decimate the populations of flies, which seriously decimate the populations of snails, whose close relatives seriously handicap the economy of human beings in many parts of the world. Is it not quite probable that we will find the answer to this problem of the Nile by taking a backward glance at the whole world situation and drawing at least some tentative conclusions from what happens in similar situations elsewhere?

We have, by this technique of

looking over the situation carefully, removed from my home town the threat of tuberculosis, of typhoid, of malaria, and of many other troublesome difficulties. We have done it without great financial help from other communities, although we have, of course, used their "know how." I rather think that we, as a nation, have overlooked, and are repeatedly overlooking, the value of lessons supplied us by the past. Suppose the creators of West Berlin had been reminded of the lessons of the Polish Corridor and Danzig. Suppose almost any political figure was measured by the campaign promises that gave him his position. Suppose we measured every sign of prosperity with a recognition of the debts that helped create a semblance of success. A backward glance at promises made by many nations might very well reduce the apparent accomplishments of diplomatic meetings, but might, in the long run, lead to genuine progress.

Yesterday, I received a postcard from a friend saying that he had just killed his first antelope. There was obvious pride associated with the statement. There was no envy on my part. When I told my son that our friend had killed an antelope he laconically commented "Why?" Somehow no matter how hard I try I have been unable to dig up a satisfactory answer to that comment. That situation has made me stop, take a backward glance and make some modification in my views on some wildlife problems. When I take that glance, so far as antelope are concerned, I go back to the first group I ever saw; to the first animal and group of the animals I ever photographed; to a group drifting into nothing in the early morning light of a Wyoming desert; to the sideward motion of the lower jaw of a buck as he chewed his cud while I photographed him with a telephoto lens; to the explosive white puffs of a herd fleeing alongside a transcontinental train; to a lot of other memories. I cannot help but join my son in his comment "Why?" about the pride of a friend who had killed one of the animals. And I like to compare it with the pride Bill Finley used to have in the movies he took, and showed to thousands, in the hope that public sentiment would help restore these wonderful animals to some of the regions where formerly they were abundant.

Let us not settle back into a rut and do nothing in matters of education, politics, religion and ethics. But, before we take too many new ventures in those fields, let us take a backward glance to help us decide really what it is we want to do next, and let us be sure that we leave our house in order and a trail behind us of which we can be reasonably proud.




**Brakes! Please!**

Above is a reproduction of a poster prepared by the National Humane Society, 733 15th Street, N.W., Washington 5, D.C. It is issued as a part of its campaign to ameliorate the appalling destruction of wildlife on our highways. The Society says that there are two types of drivers involved in this problem. One is "the decent and able but thoughtless driver" who needs to be reminded that he must think of wildlife as well as other cars and pedestrians. The other is "the malicious driver who thinks it amusing to prove his marksmanship at the wheel by running down a galloping cottontail or a defiant skunk." Posters are available for 15 cents each.

**A.A.A.S. Meeting**

The 22nd Annual Meeting of the American Association for the Advancement of Science will be held in Atlanta, Georgia, December 27 to 31. Meeting as affiliates will be the American Nature Study Society, the National Association of Biology Teachers, the National Science Teachers Association and the National Association for Research in Science Teaching. The headquarters for these groups will by the Dinkler Plaza and sessions will be held there. The public is invited.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# THE Nature CAMERA

By EDNA HOFFMAN EVANS

*NOTICE: The 1956 International Exhibition of Nature Photography, sponsored by the Nature Camera Club of Chicago, will be held at the Chicago Natural History Museum Feb. 1-26. Deadline for entering slides and prints is January 16. Classifications will be for each of the major Nature fields; awards are medals and ribbons. H. J. Johnson of 2134 West Concord Place, Chicago 47, Ill., is chairman, and information or entry forms can be obtained from him.*

**Christmas and Camera**

CHRISTMAS IS THE time when one or a combination of several things can happen to a photographer, so far as the receiving of gifts is concerned.

In the foreign field the Ditto "99" Model II has shutter speeds up to 1/1000 and a clockwork motor that makes possible 16 exposures as fast as the shutter release can be pressed.

Generally speaking, however, these happenings can be divided into two main categories. One, the beginning photographer gets a camera. Two, the advanced camera user acquires more equipment. It is around these two main headings that I am going to build this discussion.

If he belongs to the first group, the beginning camera user has a great treat in store for him. There is a thrill about taking the first roll of pictures with a brand new camera that can be equalled only by the first drive in a new car, the first ride on a new bicycle, or perhaps the first trial spin on a new pair of skates. But the thrill that comes with a new camera lasts longer because there is also the suspense of waiting to see how the first pictures turn out.

It is a bewildering experience, too,

The Bell and Howell matched camera set has an 8mm movie camera, case, lights, telephoto attachment, filter holder and retaining ring.

that business of receiving and trying out a new camera. For the first-time camera user a whole new world—a world of lenses and shutters and focusing devices—opens before his dazzled eyes. Light and distance take on entirely new meanings, and fractions of seconds become much more important than ever before.

The process of buying the camera is a bewildering one, also, whether the prospective purchaser is buying one for himself or selecting one as a gift for someone else. It is safe to say that one of the questions most frequently asked by both buyer and receiver is: "What kind of a camera should I get?"

There is—and I feel quite safe in saying it—no one *best* camera. There are, on the other hand, many *good* cameras, each possessing features

A new Kodak package contains both Stereo camera and Stereo viewer in one convenient box.

that make it desirable or appropriate for certain purposes.

### Simple cameras best

A youngster should never be given an extremely complicated or delicate camera. He does not have the power of concentration, the sureness of touch, or the specific needs that demand more than a fixed-focus camera, or at best one with a "near" and an "infinity" setting. Nor does the shutter need to be a very fast one. Even young people in their early teens are bored or made impatient by complicated camera details. As for the adult who has never tackled photography before, he, too, is easily frightened and often bewildered by the most elementary of camera fine points. Like the youthful beginner, the grown-up should not plunge too deeply into the photographic maze immediately.

For youngsters, the 35mm cameras are probably too small, and often too complicated, for good results. A camera that takes larger pictures, say 120 or 616, is best for the user who wants snapshots large enough to be seen without additional en-

The new Kodak Pictorial filter; the one shown here is Series V (green).

larging. Of course, these sizes confine him largely to black-and-white, but the youthful beginner is not yet ready for color photography.

The new Eastman Kodak Pony 135 camera outfit is a good one for the older teen-ager or the adult beginner.

Many simple, inexpensive, and easy to operate cameras now come with flash attachments. These are fine, for they make possible nighttime and other pictures that otherwise would be out of the question. Give the young recipient a simple camera, perhaps a flash attachment to make it seem more important, a carrying case for the same reason and for camera protection, flash bulbs and film, and that is all he needs. If he likes photography and has a knack for it, he will probably be able to handle more complicated equipment in due time.

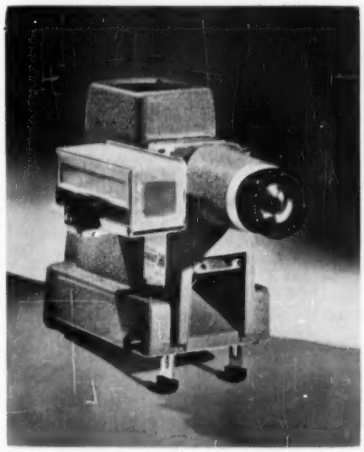
For the adult beginner the problem of selecting a camera is more difficult. He is not so easily satisfied with simple cameras, yet he may lack the patience and the aptitude that good photography requires. It is necessary in this case to decide between many more cameras—35mm cameras and those of larger size, twin-lens or single lens, focal plane or between-the-lens shutter, or even between the kind of camera that produces pictures almost instantaneously (the polaroid type) and those that necessitate a waiting period for developing and printing.

### American or foreign?

Then, particularly in the higher price ranges, there is the question of American-made versus foreign-made cameras. Which is better in the long run? I think—and I believe most authorities would agree—that cameras made in the United States are as good as any comparable ones made anywhere in the world; Germany and Japan seem to be the most prolific foreign manufacturers of cameras and camera products. In the upper price ranges, however, the imported cameras may offer more than American-made cameras at a lower price. This is because of the higher wages paid American craftsmen. It costs more to produce a fine camera in this country than it does in some parts of Germany and in Japan.

Now for the other category of Christmas gift receivers: the ones who have cameras, who know how to use them, and who enjoy photography as a hobby. They are the ones who are apt to want—and to find—additional equipment under the tree on Christmas morning.

After a person acquires a camera and learns how to use it, what does he want next? Good question. Usually he gets filters of various kinds. He gets a lens shade, too, along with



The Kodaslide Signet 300 projector with automatic slide changer and metal magazine for both showing and storing 36 cardboard slides.

some sort of a case in which to keep these supplies. Then he decides he needs a tripod, and he does, for certain types of photography.

Assuming that he started as a black-and-white photographer, it is not long before color enters the scene. To carry on this phase of photography successfully the cameraman needs more equipment—some sort of a viewer, or a projector and screen. He also needs files for his slides. Here are additional Christmas gift possibilities.

Ah, yes, and he should not forget a necessity like an exposure meter. Auxiliary lenses for extreme close-ups or for distance shooting are more than welcome on Christmas morning. And, of course, a gadget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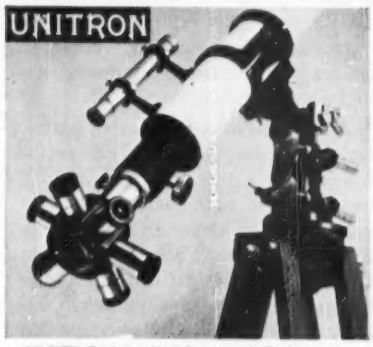


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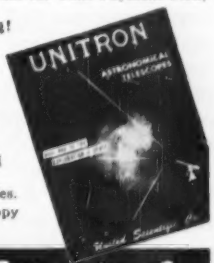


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bag is needed to carry all this equipment.

**Something for the darkroom**

Somewhere along the line, be it earlier or later in his photo-hobby career, the cameraman becomes interested in what happens to the film after he has exposed it and removed it from his camera. This interest leads him into the darkroom, and into another new world, one of chemicals and enlargers, "soup" and "hypo" and papers. He needs trays and tongs, funnels and graduates, enlargers, paper cutters, ferrotype plates or other devices for drying (at least one of each). He accumulates developing tanks of various kinds, holders, safelights, timers, and goodness knows what else. Darkrooms gobble up equipment the way a hungry boy gobbles ice cream.

As picture taking interests become more diverse and abilities greater, he finds that he needs auxiliary lighting devices for indoor shots, be they portraits or table-tops. At any time along the way the photo-hobbyist may branch off into movies, and that means another camera and a movie projector. He can also take up stereo photography and try for three-dimensional effects. For this, once again, he needs a new camera and another projector.

And so the amateur camera hobbyist goes along, collecting equipment like a pack rat or a magpie. But if he is a real enthusiast, and many people are, the amateur photographer has a hobby that keeps him interested, active, and enthusiastic. And the people who give photographic Christmas gifts can be certain that their presents can be used and enjoyed the whole year through, and also for years to come.

To be brief but specific, the following are recent offerings of just such items and gift possibilities as were mentioned above.

Model C of the Kodak Pony 135 camera is a good one for the older teen-ager or the adult beginner. It has an f/3.5 lens and a between-the-lens shutter capable of a top speed of 1/300 second. The camera itself costs $33.75. Complete with a leather field case, flashholder, and flashguard, the entire package sells for $49.65. An Eastman product, it is available at most camera stores.

**New foreign camera**

In the foreign field, a recent arrival is the Ditto "99" Model II, a full frame 24 x 36mm rapid sequence camera. It has shutter speeds up to 1/1000, and a clockwork motor that makes possible 16 exposures as fast as the shutter release can be pressed. Made in the Western Zone of Germany, this camera retails in the United States at $99. For further information contact the Ercona Camera Corp., American distributors, 527-5th Avenue, New York 17, N.Y.

Kodak Pictorial Filters are available in yellow, red, and green. The yellow, which darkens blue skies and emphasizes clouds, is priced at $1.45. The red, which provides extreme contrasts and serves to cut atmospheric haze, sells for $1.95. The green, for natural reproduction of blossoms and foliage, and for outdoor portraits against the sky, costs $1.65.

Indoor-outdoor photographers will find the Burke and James Ideal "A" tripod well suited to their needs. Light enough to be portable, it is still sturdy enough to provide a firm base for the camera. The reversible legs are a good feature; indoors, the rubber tips on the legs keep the tripod from sliding and prevent scratches on the floor, while outdoors the steel points can be anchored firmly in the ground. This, too, is available at most camera shops.

There are many different slide projectors on the market and the prospective purchaser should consider the merits of several before making a decision. One of the new Eastman models is the Kodaslide Signet 300, which has an automatic slide changer. The metal magazines, which hold 36 cardboard slides, are a convenience in showing, but they do take more storage space than some other devices. This model projector retails at $69.50.

In the movie field Bell & Howell has a new matched camera set that includes a Wilshire 8mm camera, a leather camera case, a Bell & Howell light for indoor movies, two 375-watt flood lamps, a 2½ time telephoto attachment, a filter holder and retaining ring, all packed in a deluxe carrying case. This equipment retails for $89.85. The same auxiliary outfit, plus a Monterey camera, sells for $99.85.

In the stereo field, Eastman has a package containing the Kodak Stereo camera and the Kodaslide Stereo viewer. Combined price is $97.25. Bell & Howell also has several stereo "presentation packages." One, containing the Colorist camera, a deluxe viewer, flash unit, and carrying case sells for $109.50; the other containing a Vivid camera plus similar attachments and case, is priced at $178.

Whatever you find under your tree on December 25, may your Christmas be a merry one.

**Memoirs of A Birdman**

*By Ludwig Koch. Boston. 1955. Charles T. Brandford Co. 188 pages. Illustrated. $3.75.*

The author of this book, which is not an autobiography but a memoir-ornithological, was a pioneer in the field of recording bird-songs and other sounds of Nature on phonograph discs. A German native, the rise of the Nazis sent him to England in 1936, and there he carried on his work. In England, of course, he found many kindred souls among bird watchers and bird students. In his book, the author says: "For those who share my passionate interest in the most attractive, variegated, amusing, uplifting and artful of all living things I have told in detail, as far as my notes and memory have permitted, my adventures in searching for nests, and breeding- and hiding-places, and described my ever-varying tricks and devices to persuade the birds to perform their songs and calls for the sensitive and complicated recording gear."

**Leopard in My Lap**

*By Michaela Denis. New York. 1955. Julian Messner. 254 pages. Photographic illustration by Armand Denis. $4.95.*

Michaela Denis was a New York fashion designer when she met Armand Denis at a party. He was a magnetic explorer, wildlife photographer and motion picture producer, with whom she fell quickly in love. This book is the story of their adventures together in primitive parts of Africa, South America and central Australia.

**Upland Trails**

*By Dan McCowan. New York. 1955. Macmillan. 158 pages. Illustrated. $4.00.*

This is the sixth book by this Canadian naturalist-author-photographer-lecturer, gathering between covers stories of his Nature experiences, for the most part in western Canada. This book, as with others, is based upon radio broadcasts, articles and lectures.

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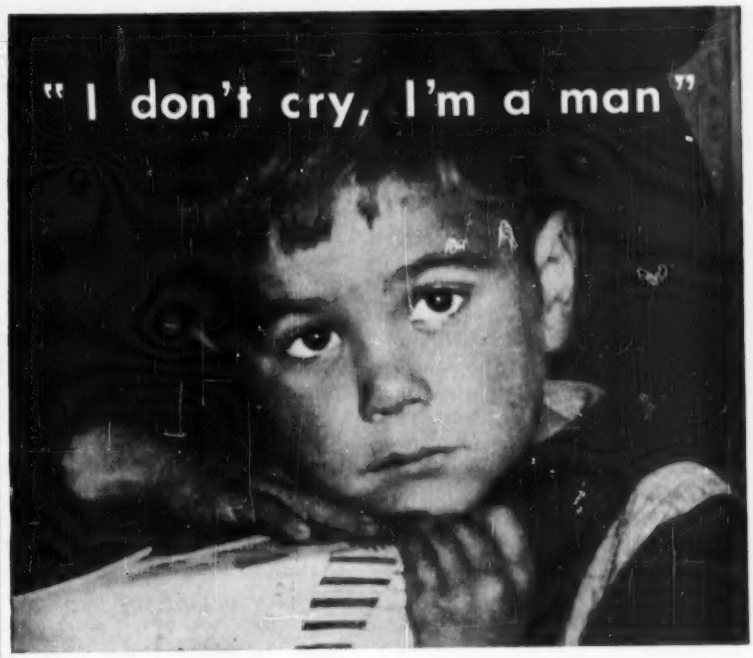


Motherless little Klaus never cries—though he's often sad-eyed and pensive. The six-year old boy has known much misery ever since his family was forced to flee East Germany with only the clothes on their backs. After months of wandering, they found refuge in a West German village. Then his mother died.

Although Klaus misses his mother terribly, much of his listlessness is the result of malnutrition. Often, there is very little food in the primitive shed where he lives with his father. Recuperating from a serious operation, the father can earn only a few pennies a day doing odd jobs. He is fighting valiantly to keep Klaus and to bring him up to be a good citizen.

To take this sensitive, imaginative boy from his father would be too cruel. Klaus shows talent. He has no toys, so he sprawls on the ground and spends hours drawing pictures in the dust with a stick. Perhaps he will grow up to be an artist. . .an architect. . .an engineer. In time, the father will be able to work again as a truck driver, will be able to afford better living quarters and good nourishing food. Until then, you can help keep them together, help make Klaus' future secure.

### HOW YOU CAN HELP KLAUS

You can help Klaus or another needy child through the Child Sponsorship Plan of Save the Children Federation. By undertaking a sponsorship, you will provide funds to purchase food, warm clothing, bedding, school supplies—even candy for "your" child. The cost is only $120 a year, just $10 a month. Full information about the child you sponsor and a photograph will be sent to you. You may correspond with "your" child and his family, so that your generous material aid becomes part of a larger gift of understanding and friendship.

Founded in 1932, SCF helps children through individual sponsorships in Finland, France, Western Germany, Greece, and Korea. It is registered under No. VFA031 with the Advisory Committee on Voluntary Foreign Aid of the Department of State.

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*Name*.....

*Address*.....

*City*.....*Zone*.....*State*.....

**Contributions to Save The Children Federation are deductible from Federal Income tax.**
NM-4

## Monkey

(*continued from page 532*)

Running machinery of any sort terrifies Mimi and calls forth the same sharp, clicking, scold-note, not unlike that of a squirrel, whether the offender is a passing car or an aeroplane going over, thousands of feet above our house. In fact, she never fails to reprove her arch-enemy the vacuum cleaner with a sort of *token* scold, even when she passes the closet where the appliance is kept. And I can count on her attempted biting out of sheer panic if I chance to pick her up while the washing machine or dishwasher is running. She is afraid of a few inanimate—or perhaps I should say *inarticulate*—objects such as gloves, scrubbing brushes, and brooms. These phobias all apparently date from the few months of her short life before she came to us, and, I suspect, must have been caused by frightening or painful experiences which left what psychologists would call conditioned reflexes. In any event, her reactions so far are invariable.

Whether Mimi's response to these particular stimuli will change as she matures remains to be seen. But the varying play of her lively intelligence from day to day is sure to be a joy to watch. A healthy, happy monkey, full of mischief and bounce and a constant craving for attention, can be a rewarding companion.

## Mianus

(*continued from page 540*)

In the final drive it was the Nature Conservancy that saved the day. President Richard H. Pough stated: "We are delighted to learn that an effort is under way to preserve the magnificent forest that now occupies the Mianus River Gorge area on both sides of the New York-Connecticut boundary. We know of no other comparable tract of what appears to be virgin, or at least mature, forest anywhere in southwestern Connecticut, or in fact in the entire New York City region. . .The preservation of wild tracts like the Mianus River Gorge is one of the critical conservation problems of our times, and many of the biological sciences will be seriously crippled in years to come if we do not preserve old-growth units like this. . ."

Most important, the Nature Conservancy backed up their words with a grant of $7000, which assured the original purchase price of $30,000. This is in the form of a loan, which will be paid back within a year, thus releasing the same amount for the use of other similar conservancy groups.

And so the Mianus Gorge is being saved, but this is only the first step toward the acquisition of one hundred or more adjoining acres of land on both sides of the river. When that objective is realized it will indeed be a cause for rejoicing.

---

**Briefly Noted**

*Gray Squirrel. By Mary Adrian. New York. 1955. Holiday House. 46 pages. Illustrated by Walter Ferguson. $2.00.* One of the excellent "Life-Cycle Stories" for younger readers.

*Fire in Your Life. By Irving Adler. New York. 1955. The John Day Company. 128 pages. Illustrated by Ruth Adler. $2.75.* Popular discussion of fire from the point of view of man's relation to it and it to him.

*Lion Hound. By Jim Kjelgaard. New York. 1955. Holiday House. 216 pages. $2.75.* The story of a hound dog and a rogue mountain lion.

*Non-Euclidean Geometry. By Roberto Bonola. New York. 1955. Dover Publications. Paper, $1.90; Cloth, $3.95.* For the mathematician who wishes to understand the hypothesis on which Non-Euclidean Geometry is based.

*Climates in Miniature. By T. Bedford Franklin. New York. 1955. Philosophical Library. 137 pages. Illustrated. $3.75.* A study of animals and their relations with and reactions to climate.

*Theory of Groups of Finite Order. By W. Burnside. New York. 1955. Dover Publications. 512 pages. Paper, $2.00; cloth, $3.95.* Entirely for the mathematician.

*Soil Warming by Electricity. By R. H. Coombes. New York. 1955. Philosophical Library. 116 pages. Illustrated. $4.75.* Discussion of this innovation in the growing of plants.

*Obedience Training for Your Dog. By Cecil Wimhurst. New York. 1955. Dover Publications. 70 pages. $.65.* Simple presentation of the problems of training the dog in obedience.

*Sound Barrier. By Neville Duke and Edward Lanchbery. New York. 1955. Philosophical Library. 129 pages. Illustrated. $4.75.* The story of high-speed flight.

*See through the Sea. By Millicent Selsam and Betty Morrow. New York. 1955. Harper and Brothers. Illustrated by Winifred Lubell. $2.50.* A look beneath the surface of the sea for the young reader.

*Zoo Pets. By William Bridges. New York. 1955. William Morrow and Company. 95 pages. Illustrated. $2.50.* A Morrow Junior Book with many illustrations from the New York Zoological Park.

*The Bromeliaceae of Brazil. By Lyman B. Smith. Washington, D.C. 1955. Smithsonian Institution. 290 pages.* Organization of the mass of recent species of Brazilian Bromeliaceae in relation to past works to form a new basis for other branches of biological study.

*So Tiberius. By Ethel Mannin. New York. 1955. G. P. Putnam's Sons. 120 pages. $2.50.* Already branded as unlovable and aloof, the protagonist of this brief, sensitive story, an amber-eyed, silky black cat, Lucia, weaves her way into the chaotic life of her benefactor. This book will add to your understanding of the ways of a cat, whether or not you are among those who like them.

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**Adventuring with Beebe**

*By William Beebe. 1955. New York: Duell, Sloan and Pearce—Boston: Little Brown. 283 pages. Illustrated. $4.50.*

Books by William Beebe would require a considerable shelf, since they now number, with this present volume, an even twenty-five. Here the author has made a selection from his own writings that have told of his Nature adventuring during more than forty years of time. Dr. Beebe has divided his book into three parts, the first dealing with "Bermuda Station" and giving us tales of that locale; the second being entitled "Pacific Cruise" and comprising selection from that area; the third, called "Jungle Life," takes the reader into tropical lands. Usually selected writings are chosen by someone other than the original author, possibly on the theory that greater objectivity can thus be attained. William Beebe has, we should say, been sufficiently objective in making his own choice, but it would be impossible to put the "best of Beebe" into 283 pages.

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# Nature AND THE MICROSCOPE

By JULIAN D. CORRINGTON

## SCIENCE SHOPS

### 7. Ward's Natural Science Establishment

**The Great Collector**

AN IMPORTANT PERSONAGE in the development of science teaching in America in the Nineteenth Century—and certainly one of the most romantic and interesting characters of his time—was Henry Augustus Ward. Born on March 9, 1834, in Rochester, New York, of a family line that included physicians, theologians, business men, farmers, politicians and others of means and influence, young Ward was only one generation removed from the days when the Genesee country was considered frontier.

His father was destined to become a visionary scholar and his mother a religious fanatic, both of them out of touch with the main stream of the Ward family fortunes, and so it was to the strong, practical grandfather, Dr. Levi Ward, a physician turned farmer and financier and the power behind Ward destinies, that young Henry turned more and more for help through the years. His early life seems incredibly hard to one accustomed to the easy, luxury-loving and mechanism-dominated existences of today. There were long and arduous tasks on a farm to which he was sent when his father left the home for a life of his own in Chicago, and a struggle to support himself independently when he was only thirteen, acting as janitor at his school, tending fires, doing his own cooking. He glazed windows, cleaned wells, walked endless miles, tutored other boys in German, bartered and traded and collected, all the while attending classes and striving to get an education. One cannot help but wonder how many boys who reached thirteen in 1955 would be able to handle such a schedule!

All through his youth Henry Ward manifested a profound love for natural history and an inordinate geological bent. Any rock or fossil intrigued him. This interest came to the attention of Dr. Chester Dewey, head of the Rochester High School, who followed the lad's career with interest and, when Ward was seventeen, interceded wth grandfather Levi and Uncle Levi A. Ward to send Henry to Williams College. There he met his greatest lifelong friend, James Orton, later Professor of Natural Science at Vassar. However, Ward was unprepared academically and unsupported by sufficient funds from home and so left in the spring, returning to Rochester. Soon Dr. Ferdinand Dewilton Ward, a genial uncle, a pastor and former missionary provided funds, and sent Henry to Temple Hill Academy. At this school we find young Ward arranging a cabinet of geological specimens, going on field trips with a charming young girl named Phebe Howell, and forming a strong friendship and partnership with his schoolmate, Charles Wadsworth, son of the James Wadsworth who became a general in the Civil War and who was a great landowner in the Genesee area.

#### To Paris to study

Charles developed a love for geology from this association, and the father came forth with the money for trips to the St. Lawrence for the two youths and to Nova Scotia for Henry, wherein he joined Orton at Boston and sailed for St. Johns. Henry was also befriended by Agassiz, James Hall, and other notables, entering Harvard as a special student under Agassiz. These benefactions helped, but the greatest one was to come. Wadsworth had sent his son to Paris to study mining engineering at the famous *Ecole des Mines* and, wishing worthwhile companionship for him, now furnished expenses for Henry as well. So at the age of 20, in 1854, we find Ward embarking on the first of innumerable crossings of the Atlantic, at a time when few people indeed made so hazardous a journey. He was supposed to study for three years, but events were to prove that no one was ever safe in predicting the future movements of this restless and ambitious adventurer. Henry settled *en pension* at the Hotel Martin, where he dined with Professor Martin, his wife, and three lovely daughters, one of whom, Amelia, was to exert an influence on Ward all the rest of his days.

An illness of Charlie's brought on a recuperative trip to Egypt and Palestine, but when one reads of the hardships and dangers they encountered, sailing up the Nile, crossing through war-filled Bedouin territory camel-back with an armed escort, and at length, after 55 days, attaining Jerusalem, it would seem anything but a jaunt for an invalid. The whole trip took eight months and cost Papa Wadsworth $5000, but at least Charles returned strong and well, and many a specimen was shipped back to enrich the Wadsworth cabinet, as arranged collections of rocks, minerals, fossils, or other natural objects were then called. Two years later a depression hit the fortunes of the senior Wadsworth, and both young men were compelled to forego completion of their education and to return to America. But whereas Charles took a direct route home, we find Henry characteristically traveling all over Europe, from one capital to another, for he had discovered that there was money in fossils, then all the rage, in the same way that going after deposits of uranium with a Geiger counter has captured the public interest today.

The future museum builder excavated for fossils in the great wine cellars of his friend, the Widow Cliquot, visited Schimper in Strassburg and other notables in Carlsruhe and Darmstadt, studied the establishment of Kranz in Bonn, who supplied museums and universities throughout Europe with geological and zoological material. Then on through Austria and Italy and back through Germany and France, sending home case after case of specimens, supporting himself by the trade in fossils. So highly did he impress all with whom he met, that he was the only person allowed to make plaster casts of many of the celebrated fossil remains in Europe's most important museums. In 1857 we find him in St. Petersburg and Moscow, making out with the language as best he could, and inspecting the great frozen Siberian mammoth. This would not seem exactly the route one would choose

to return to Rochester! Back through Sweden, Norway, Holland and England went Ward, meeting Sir Roderick Murchison, celebrated geologist. Everyone at home had been urging—even demanding—his return. Phebe Howell, now his affianced, wanted him back; Dr. Dewey, now a professor at the University of Rochester, was becoming impatient for Ward to come back and take up a professorship at this new institution; and the whole family insisted he return and settle down. Instead, he disappeared into West Africa!

### The long way home

This startling turn of events occurred after he had made a balloon ascension in Paris with M. Goddard, toured Spain and Portugal with Orton via diligence, missed the boat to Havana that would have carried him at least to the Western Hemisphere, and sailed instead to Madeira and to Teneriffe in the Canaries. Taking a twenty-dollar deck passage to Sierra Leone on the African west coast, he put up with incredible hardship and deprivation to attain his goal, stopped off at Bathurst, Bonny, and Fernando Po, almost died from blackwater fever, then contrived to make a journey up the great Niger River far into the jungles of the interior. Sick again, friendless and moneyless in a French outpost, he paid for his lodgings and board by teaching English to the French officers.

On his return to Fernando Po his illness recurred and the boat captain ruthlessly set him ashore to die, fearful of contagion. But Ward was not to die for many years. A locally notable character, "the washer woman of Fernando Po," found him, built a hut for him, and nursed him back to health. She was a very attractive and intelligent native who could speak French and she determined to marry this handsome young American explorer. How Ward circumvented this proposal is not known, but he shortly sailed for Madeira and thence to Havana; but he always remembered his benefactress and sent back to her a large box of gifts. By roundabout stages, of course, he eventually attained Rochester, and there found that he was already famous. Many of his letters and excerpts from his diary had been published. Such unprecedented and appalling experiences for a young man in his twenties were indeed unique and certain to capture the public fancy.

### Always on the move

This account of the early career of Henry A. Ward is but a sample from his long life. Time and again in the following years he was to cross oceans, mountains, the desert, the jungle. From collecting and dealing in rock and mineral specimens he had turned to fossils, and it was a natural transition from them to zoological material. In the latter part of his life, meteorites claimed almost his sole attention and many are the celebrated tales of his journeys to acquire them. He talked Africa with David Livingstone in a London drawing room; he lectured for a while at the University of Rochester, although his class never knew when they would come to meeting some morning and find a sign tacked to the door, "gone to Patagonia." He hobnobbed with P. T. Barnum and with Buffalo Bill; collected corals and other marine specimens from the Great Barrier Reef in Australia, trying to keep the Blackfellows from eating all the lizard and insect specimens he caught; he descended into the craters of Vesuvius and Vulcano, walking across warm, thin, and quaking crusts of lava to gaze directly down into Inferno; he went far into the Caucasus and Persia after meteorites, crossed the Andes in Peru and Bolivia, rounded Cape Horn and collected on Tierra del Fuego. There was indeed scarcely a place on earth that he did not visit on foot, on horseback or camelback, by carriage or pack train, by steam trains and ships; journeys requiring months that now are but a matter of days or hours. There was a long period when he was a gold mining prospector and engineer in our own rugged West. Strange peoples, not a few of whom were still savages or cannibals; strange foods and customs and languages. Ward adapted himself to them all and was known the world over, probably the greatest traveler who ever lived.

In our next installment we shall see the results of all of this globe-girdling in the flowering of the great museums of America. And—oh yes—he married Phebe!

We are indebted to the standard reference work on our subject, *Henry A. Ward, Museum Builder to America*, by his grandson, Roswell Ward, published by The Rochester Historical Society (Pub. XXIV) in 1948.

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## Beginner's Primer

In older manuals of entomology, the scheme of classification generally followed placed bees at the top of the insect class; today, however, they are subordinated to flies and the highly modified fly offshoot, fleas. Decisions of this sort are based on technicalities of structure and development, but your amateur entomologist and general student of Nature will continue to vote for the bees, wasps, ants, and their relatives of the Order Hymenoptera as tops among insects because of their intricate social organizations and highly complex instincts.

This is an immense order, second in size only to beetles. Essig states that at least 120,000 species are known as against 250,000 for the Coleoptera, but thinks there is a possibility that when all the minute and obscure forms are described the Hymenoptera will lead. The animals included in this order are so varied that a generalized description is difficult. Everyone knows bees and wasps and ants, but there are great numbers also of sawflies, horntails, braconids, ichneumons, ensign flies, gall flies, chalcids, fairy flies and many others that are familiar only to the few who make their study a specialty.

These insects are characterized as having two pairs of membranous wings (*hymen*, membrane; *pteron*, wing), biting and sucking mouthparts, and a complete metamorphosis. The name is poorly chosen, since the great majority of all insects have membranous wings; flies, for example, are just as much "hymenoptera" in this sense as are bees. Further details state that of the two pairs the first are much the larger, that the two of a side are generally held together in flight by a series of hamuli or hooks on the leading edge of the hindwing that fit into a trough on the trailing edge of the forewing (this Department, Feb., 1953), and that the venation is greatly reduced, with few cells, those of the margins incomplete. The mouthparts are complex and can function in biting, chewing, lapping, and sucking. The larvae differ greatly in the two main suborders and are either herbivorous, carnivorous, or parasitic, and the pupae are either exarate (appendages free) or enclosed in a silken cocoon.

### Wide range of size

In size the adults range from the smallest of all known insects, *Alaptus*, which is but 0.21 mm long (Essig) to heavy-bodied bumblebees or the elongate ichneumons. The head is free to a high degree, the neck being very thin; anyone who has watched a bee or wasp closely will recall to what a marked extent the head may be rotated. The compound eyes are generally large and occupy most of the head, a condition termed holoptic, as with many flies. Most species have three ocelli (simple eyes) arranged as a triangle on the top and front of the head. The antennae are complex, usually with 13 segments in the males and 12 in females. In type they may be filiform, moniliform, clavate, pectinate, flabellate, or geniculate. Antennal types were discussed in these columns for May, 1941. In the Hymenoptera the basal segment is specialized as an elongate and swollen member termed the *scape*, followed by a short second segment, the *pedicel*, from which the remaining ones, collectively designated as the *flagellum*, arise. The geniculate or elbowed form is well exemplified by ants.

The mouthparts are too complex for detailed discussion in an introductory article, but are so adapted as to be able to perform almost all of the many kinds of work that those of other insects can do. Thus a bee may bite wax plates of the comb, chew wax or resin, lap honeydew from other insects, or suck nectar from flowers. The lower mouthparts constitute a proboscis or sucking apparatus commonly termed the tongue.

The legs are adapted for many specializations in the different members of the order. Ants walk or run, some wasps grasp prey with the forelegs, mining bees and many wasps and ants dig with the legs and use them to build nests. In bees the insect leg reaches the climax of its evolution; the intricate construction of bee legs formed the subject of our feature article for April, 1953. Certain features of the leg are used in classification: For instance, ichneumon flies have two segments in the trochanter, bees the usual single segment. In most members of the order the first segment of the tarsus may be elongate but not especially enlarged, but in bees it becomes huge and is dignified by a name of its own, the metatarsus.

The sting, in those forms that have it, is a modified ovipositor, and hence no male insect can sting. Alas! Most of us are all too familiar with the proclivities of the female and the manner in which she exemplifies Kipling's classic remark. In many of the lower families the ovipositor is a piercer of wood or a saw; these species do not sting and there also are stingless bees, a statement that sounds like one for Ripley. Of all orders of insects, this one is the most beneficial from the standpoint of human interests. Further installments will describe some of the chief features of members of the Hymenoptera and the kinds of slide preparations that may be made from them.

## Interference Microscope

An invention of great importance to many advanced fields of research is the recent *interference microscope*. The first commercial model, we believe, was manufactured by C. Baker of Holborn, Ltd., England. Now comes announcement of the first American instrument of this type, the A O—Baker Interference Microscope No. 9, from the Instrument Division of the American Optical Company in Buffalo.

By means of observing changes of phase in the vibration of light waves, a trained operator can evaluate the capacity of the specimen to make these changes and can then translate his measurements into other information. Research papers thus far issued have dealt with determination of the total mass of each of a number of cell components, such as chromosomes, water, protein, the measurement of thin films, and the analysis of synthetic fibers. The same microscope may also be used for regular phase-contrast studies. It is believed that this new wonder-machine may well play an important role in the combined onslaught on the cancer problem.

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# Reviews

**Mammals of the World**

*By Francois Bourlière. New York. 1955. Alfred A. Knopf, Inc. 223 pages. Illustrated in color and black and white. $12.50.*

In this fine presentation of the world's mammals the author groups the subjects by geography and habitat. After discussion of what a mammal is, he presents chapters on the mammals of tropical forests, of the savannah and desert, of temperate forests and prairies, of the great North, of the mountains, and of the air and sea. The text is popular and general rather than specific as to life history data about the various species. Printed in France, the color and black and white reproductions are excellent.

**Louisiana Birds**

*By George H. Lowery, Jr., Baton Rouge, La. 1955. Louisiana State University Press for Louisiana Wild Life and Fisheries Commission. 556 pages. Illustrated in color and black and white by Robert E. Tucker. $5.00.*

Louisiana is rich in bird life, both as to resident species and those that spend some time, winter or summer, within its boundaries. This is due in large measure to the varied habitat to be found there. The author, professor of zoology and Director of the Museum of Natural Science at Louisiana State University, has devoted twenty-five years to a great amount of field work in every parish in the State. In this splendid book he shares this knowledge with others interested in Louisiana's bird life. Introductory chapters deal with history; identification of birds; the bird skeleton; feathers; plumage and molt; migration; economic value of birds; conservation and wildlife management and methods of attracting birds. Then follow the splendidly illustrated accounts of the species. This is a valuable addition to the list of State ornithologies.

**My Hobby Is Collecting Rocks and Minerals**

*By David E. Jensen. New York. 1955. Hart Publishing Co. 122 pages. Illustrated. $2.95.*

Few hobbies have grown with the rapidity of that of rock and mineral collecting, with attendent rendering of the specimens into objects of decoration. The ranks of the rockhounds include many young people. It is to these younger folks that the author, who heads the geology department of Ward's Natural Science Establishment, directs this book. It is a practical introduction to recognizing, classifying, buying, finding, collecting, preparing, displaying, cataloging and otherwise getting fun out of this hobby.

**North American Birds of Prey**

*By Alexander Sprunt, Jr. Foreword by Roger Tory Peterson. New York. 1955. Harper and Brothers. 227 pages. 46 plates in full color. $5.00.*

The hand of man has long been raised against the birds of prey—the vultures, kites, hawks, eagles and owls. Nearly twenty years ago John B. May published *The Hawks of North America*, and the past two decades have seen improvement in man's attitudes toward these birds. There remains a long way to go to break down blind and uninformed prejudices and to spread the knowledge of these predators that has grown up in recent years. Today it is possible to view these birds with an understanding of their place and their importance. Now comes Alexander Sprunt, life-long ornithologist and member of the staff of the National Audubon Society, with a splendid book that is both based upon and supplementary to John B. May's work. Here we have a most valuable presentation of identification and life history facts about each one of these birds of prey, plus a history of each species and its position today, both with respect to man and scientific knowledge.

**Man's Nature and Nature's Man**

*By Lee R. Dice. Ann Arbor, Michigan. 1955. University of Michigan Press. 329 pages. $5.00.*

In his introduction to this provocative book the author, who is Professor of Zoology and Director of the Institute of Human Biology at the University of Michigan, says: "The major thesis of this book is that man is able to exist only as a member of some community in which associated species of plants and animals supply him with food and other essential supplies and services. Man, in turn, has profound effects upon his plant and animal associates. These interrelations between man and other kinds of organisms are of great significance for human welfare."

**The Art of Knotting and Splicing**

*By Cyrus Lawrence Day. Annapolis, Maryland. 1955. United States Naval Institute. 224 pages. Illustrated. $5.00.*

This excellent book, now available in a second and revised edition, has a wide interest. Of course, it is of basic use to the blue-water sailor, but the information presented is equally useful to forest ranger, mountain climber, woodsman, rancher, Boy Scout and the hobbyist. Profusely illustrated with pictures that make clear the manner in which the knots are tied and the splices spliced, these admirably supplement the author's clear text. The number of knots is amazing to us.

**Living Mammals of the World**

*By Ivan T. Sanderson. New York. 1955. Hanover House. 303 pages. 330 illustrations, 190 in full color. $9.95.*

This is a beautifully illustrated, popular introduction to the living mammals of the world. The author groups these in the following order of presentation: egg-laying mammals; pouched mammals; insect-eating mammals; flying mammals; gliding mammals; top mammals; left-over mammals; scaly mammals; leaping mammals; gnawing mammals; fin-footed mammals; flesh-eating mammals; whales; the aardvark; hoofed mammals with an odd number of toes; hoofed mammals with an even number of toes; sea cows; hyraxes; elephants. Mr. Sanderson's text is popular and general in its discussion of the different families and genera. Both color and black and white illustrations are splendidly done.

**The African Giant**

*By Stuart Cloete. Boston. 1955. Houghton Mifflin Co. 400 pages. Illustrated. $4.00.*

The author of this book has written several novels against a South African background and this present volume is the latest of four non-fiction books. This is the story of a journey that took a year and covered the territory from the Cape to the deserts of the north. The giant that is Africa is awakening, and one of the purposes of this book, and the trip upon which it is based, was to assess the extent and significance of this awakening. As a picture of Africa and its people it is fascinating and important.

# INDEX TO NATURE MAGAZINE

**January-December 1955**

(*Gen.* indicates a general article; *fig.*, a photograph or drawing; *rev.*, a review; *port.*, a portrait.)


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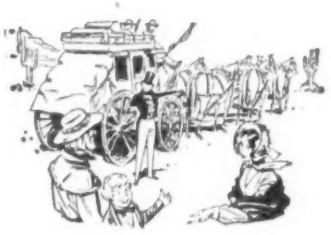
## When the gun failed, they used a tablespoon



HE LEARNED acting the hard way, barnstorming frontier towns by barge and stagecoach, playing in sheds and taverns.

One night in Houston, a Texan even suggested the troupe tour through Indian country, carrying their stage weapons for protection. Joe Jefferson declined. He later said he had shivered when he imagined himself facing a hostile Indian and armed only with a stage pistol whose tendency to misfire had several times "compelled our heavy villain to commit suicide with a tablespoon."

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They loved Joe J[illegible]e because he was a ge[illegible]eople happy. And his sun[illegible]arkles in the spirit of A[illegible]erson, Americans still kn[illegible]a hard road and smile w[illegible]ughest.

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